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MOON LAKE
POWER PLANT PROJECT
Units 1 and 2

ENVIRONMENTAL IMPACT STATEMENT

FINAL

Department of Agriculture
Rural Electrification Administration

Department of The Interior
Bureau of Land Management

March 3, 1849

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Utah State Office
136 East South Temple
Salt Lake City, Utah 84111

IN REPLY REFER TO
1792 ML
(U-910)

April 1981

Dear Reader:

This Final Environmental Impact Statement (EIS) is furnished for your information and use. It has been prepared as a result of comments received by BLM and REA during the public review of the Draft EIS.

In spite of its size, this Final EIS is in an abbreviated form consistent with the intent of the Council on Environmental Quality Regulations, in that certain portions of the Draft EIS have not been reproduced. For complete EIS coverage, a copy of the Draft and Final EIS must be used together. Guidelines for use of the two documents are outlined just ahead of the Final EIS Table of Contents.

A limited number of copies of the Draft EIS are available upon request to:

District Manager
BLM District Office
P.O. Box 768
Richfield, Utah 84701

Should you desire to offer written comments on the content of this Final EIS, they will be considered as part of the Federal decision process if received by BLM or REA prior to the time the decisions are made. Addresses and time limit are indicated at the bottom of the cover sheet in this Final EIS.

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ENVIRONMENTAL IMPACT STATEMENT

MOON LAKE POWER PLANT PROJECT
UNITS 1 AND 2

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Jointly Prepared By

BUREAU OF LAND MANAGEMENT
DEPARTMENT OF THE INTERIOR

and

RURAL ELECTRIFICATION ADMINISTRATION
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COVER SHEET

Moon Lake Power Plant Project Units 1 and 2
Environmental Impact Statement

( ) Draft (X) Final

Joint Lead Agencies

U.S. Department of the Interior, Bureau of Land Management (BLM)
U.S. Department of Agriculture, Rural Electrification Administration (REA)

Participating Federal Agencies Which Provided Information

Environmental Protection Agency
U.S. Department of Agriculture
  Forest Service
  Soil Conservation Service
U.S. Department of the Interior
  Fish and Wildlife Service
  Geological Survey
  Heritage Conservation and Recreation Service
  National Park Service
  Office of Surface Mining
  Western Area Power Administration
  Water and Power Resources Service
U.S. Department of Transportation
  Federal Aviation Administration

Other Federal Agencies With Potential Jurisdiction

Federal Communication Commission
Interstate Commerce Commission
President's Advisory Council on Historic Preservation
U.S. Department of Defense
  Army Corps of Engineers
U.S. Department of Energy
U.S. Department of the Interior
  Bureau of Indian Affairs
U.S. Department of Transportation
  Federal Highway Administration
Federal Highway Administration

States, Counties, and Reservations that Could Be Directly Affected

State of Colorado
  Moffat County
  Rio Blanco County
State of Utah
  Carbon County
  Daggett County
  Davis County
  Duchesne County
  Juab County
  Morgan County
  Salt Lake County
  Summit County
  Uintah County
  Utah County
  Wasatch County
  Weber County

State of Wyoming
  Uinta County
Uinta and Ouray Indian Reservation

Abstract

The EIS will be used by BLM and the Forest Service as input in decisions regarding use of Federal land, by REA in decision on loan guarantees, by Office of Surface Mining in decisions on the mine plan, and by other Federal State, and local agencies.

This statement assesses the environmental consequences of alternatives designed to meet, at least in part, the baseload energy needs of the Deseret Generation and Transmission Cooperative of Sandy, Utah. The statement focuses on alternative power plant sites, coal supply and transport systems, water supplies, energy generation technologies, and energy conservation as well as the No Action alternative.

The major environmental topics discussed are related to air quality, water resources, threatened and endangered fish species, land use, and socioeconomics. A discussion is also provided on the purpose and need for the proposed project.

For further information regarding this statement contact:

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Date by Which Comments on the Statement Must Be Received:

Federal decision on this project will not be made until at least 30 days after the EPA Final EIS notice of availability has appeared in the Federal Register. During that 30-day period, written comments on the content of the Final EIS will be accepted at the addresses noted above. These comments will be considered in the Federal decision process.

Date Statement Made Available to the Environmental Protection Agency and the Public:

Draft: January 8, 1981.
Final: May 1, 1981

GUIDE TO THE EIS DRAFT AND FINAL

THE DESERET GENERATION AND TRANSMISSION COOPERATIVE (DESERET) HAS APPLIED TO THE BUREAU OF LAND MANAGEMENT FOR RIGHTS-OF-WAY TO UTILIZE PUBLIC LANDS TO DEVELOP THEIR MOON LAKE POWER PLANT PROJECT

This Environmental Impact Statement (EIS) consists of two documents - a Draft EIS and Final EIS. The present document is the Final EIS and merely supplements and updates the Draft. Some large portions of the Draft are reprinted here because a significant amount of new information has become available since publication of the Draft. The remainder of the Final EIS incorporates the Draft EIS by reference. The reader of the Final EIS must have access to or be familiar with the Draft. The entire EIS is intended to help public officials make decisons that are based on understanding of the environmental consequences and take actions that protect, restore, and enhance the environment. It has been prepared to comply with regulations of the Council on Environmental Quality (CEQ) issued November 29, 1978 (43 FR 55978-56007), which emphasize concentration on significant issues and impacts. This emphasis sharply defines the options and provides a clear basis for choice by the decision-maker and the public.

IF YOU WANT TO KNOW ABOUT THE PURPOSE AND NEED FOR THE PROJECT AND THE BACKGROUND OF THIS EIS, READ THE REPRINTED CHAPTER 1 OF THE FINAL EIS.

Chapter 1, Purpose and Need of the Proposed Action, discusses the need for additional sources of power to help meet growth demands and regional/national energy goals. This chapter provides background information, putting this need into perspective. This chapter also details the concerns raised by government agencies and the public. Chief among these is concern over socioeconomic impacts in local communities.

IF YOU WANT TO KNOW WHAT ALTERNATIVES WERE ORIGINALLY PROPOSED, READ CHAPTER 2 OF THE DRAFT EIS.

Chapter 2 of the Draft EIS, Description of Alternatives, describes in detail the applicant-proposed actions and alternatives to them. These include plant side alternatives; coal source alternatives; coal transport alternatives; water source alternatives; water transport alternatives; and transmission system alternatives. Also included is the "No Action" alternative which forcasts anticipated baseline impacts that would occur if the project is not built.

IF YOU WANT TO KNOW WHAT SECTIONS OF CHAPTER 2 HAVE BEEN REVISED OR IF YOU WANT DETAILED INFORMATION ABOUT THE AGENCY—PREFERRED ALTERNATIVE, READ THE REPRINTED PARTS OF CHAPTER 2 IN THE FINAL EIS

Chapter 2 of the Final EIS details minor text revision to the Draft EIS. Also included is the Agency-Preferred Alternative. The Director of BLM and the Administrator of REA are the decision-makers and may select any combination of the alternatives or some other alternative determined from the information provided in this document. This chapter only summarizes the environmental effects explained in detail in Chapter 4 of the Final EIS.

IF YOU WANT TO KNOW ABOUT THE ENVIRONMENT OF THE AREA AFFECTED, READ THE REPRINTED CHAPTER 3 OF THE FINAL EIS.

Chapter 3 Description of the Environment, identified the study area for each affected resource and describes the current environmental situation.

IF YOU WANT DETAILED INFORMATION ON HOW THE ALTERNATIVES WOULD AFFECT A PARTICULAR RESOURCE, READ THE REPRINTED CHAPTER 4 OF THE FINAL EIS.

Chapter 4, Environmental Consequences, is a resource by resource analysis of the impacts of construction of the project. Here the reader can find the detailed explanations for the impacts presented in Chapter 2. Thus if a reader wants to understand the impacts on mammals caused by the various alternatives, he or she may turn to the Wildlife portion of this section for an explanation.

IF YOU WANT TO LEARN THE OPINION OF COMMENTERS ABOUT THE EIS, READ THE REPRINTED CHAPTER 5 OF THE FINAL EIS.

Chapter 5, Consultation and Coordination, contains a copy of all comment letters and oral testimony comments from the public hearing transcripts. Also included are BLM responses to the substantive comments.

IF YOU WANT TO KNOW WHAT APPENDICES HAVE BEEN REVISED OR ADDED, READ THE APPENDICES SECTION IN THE FINAL EIS.

For example, a revised Appendix 11, Deseret's Proposed Mitigation of Project-Induced Socioeconomic Impacts, has been included in the Final EIS.

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SUMMARY

INTRODUCTION

The Deseret Generation and Transmission Cooperative (Deseret), headquartered in Sandy, Utah and comprised of six rural electric distribution cooperatives, has applied to the Bureau of Land Management (BLM) for rights-of-way to utilize public lands in development of their Moon Lake power plant project (Moon Lake project), units 1 and 2. Deseret has also applied to the Rural Electrification Administration (REA) for loan guarantees to finance the project. Acting in behalf of Deseret, Western Fuels Utah, Inc., of Lakewood, Colorado, has applied to the Office of Surface Mining (OSM) for approval to mine coal at the Deserado Mine.

Deseret's proposal is to initiate construction of one 400-megawatt (MW) unit in 1981 and to bring it on line in late 1984. Depending on the development of future power demands, which have been depicted in Chapter 1, construction of a second 400-MW generating unit could begin in 1983 and be brought on line in 1988. Power requirement studies (PRS) would be reevaluated prior to approval and initiation of construction of unit 2.

Deseret furnishes power to residential, commercial, agricultural, and public institutional consumers in five states (Utah, Colorado, Wyoming, Nevada, and Arizona) with the majority of these consumers located in Utah.

PURPOSE AND NEED

Deseret does not have sufficient generating capacity to fulfill all its customers' needs. The bulk of its load and service requirements is purchased from other suppliers - the Department of Energy's Western Area Power Administration (WAPA) and Utah Power and Light Company (UP&L) through Deseret's membership in the Intermountain Consumers Power Association (ICPA). Power purchases from WAPA are limited, and a Utah Public Service Commission Order has directed UP&L to terminate its wholesale power sales agreements with members of ICPA by March 1985. Therefore, Deseret cannot rely on UP&L for an adequate and reliable power supply beyond 1985, and the purchased power costs would be significantly increased at that time if open market sources were available and had to be used.

A Power Requirement Study (PRS) completed by Deseret in 1980 contains load projections reflecting an analysis of historical growth trends and anticipated future use characteristics, energy conservation, load management, population growth, economic development, etc. The power projections seem reasonable, considering Utah's growth rate during the past decade and that projected for the 1980s. During the decade of the 1970s, Utah's population grew by 29 percent. The Utah State Planning Coordinator's Office has indicated that the State's population is projected to increase from 1.42 million in 1980 to 2.27 million by the year 2000. In terms of total change, this represents a 60-percent increase (Utah State Planning Coordinator, 1980). The PRS indicates that Deseret cannot meet its future energy demand without additional generating capability.

APPLICANT-PROPOSED ACTIONS

Deseret's proposed location for the power plant is the Bonanza site located northwest of Bonanza, Utah in Uintah County.

Deseret's proposed course of action would be to pipe water approximately 19 miles from a collector-well system located beside the Green River (about 2.5 miles upstream from Walker Hollow) to the Bonanza site. This water would be taken from a 30-cubic-feet-per-second (cfs) (21,720 acre-feet per year) water right owned by Deseret.

Up to 2.7 million tons of coal for the generating station (assuming two units) would be supplied annually from a proposed underground coal mine (Deserado Mine) located approximately 7 miles northeast of Rangely, Colorado. This mine would be operated by Western Fuels Utah, Inc., of Lakewood, Colorado. Coal would be delivered to the Bonanza plant by a 35-mile-long electric railroad.

The electricity generated by unit 1 of the proposed plant would be distributed to Deseret's consumers by four transmission lines; one 345-kilovolt (kV) alternating current (a.c.) line and three 138-kV a.c. lines. The 345-kV line would extend from the generating station to a UP&L substation proposed for construction near Mona, Utah in Juab County. The 138-kV lines would extend from the generating station to existing substations near Upalco, Utah in Duchesne County; Vernal, Utah in Uintah County; and Rangely, Colorado in Rio Blanco County. The 138-kV line to the Upalco substation would be placed on the same towers as the 345-kV line to Mona. If unit 2 were constructed, a second 345-kV line would be built from the plant site to the existing UP&L Ben Lomond substation near Ogden, Utah or to the oil shale fields in Utah and Colorado. The actual destination would depend upon power demands.

THE SCOPING PROCESS

In accordance with the National Environmental Policy Act of 1969 as amended (NEPA) and the implementing regulations of the Council on Environmental Quality (Federal Register, Vol. 43, No. 230), the proposed project was presented to the public for comment.

Three scoping meetings were held by the BLM-REA and Deseret to identify the significant issues related to the project. These meetings were held at Ft. Duchesne, Utah, on May 29-31, 1979; Rangely, Colorado, on September 10, 1979; and Vernal, Utah, on September 11, 1979. The meetings held in Rangely and Vernal were public meetings. The meeting held at Fort Duchesne was for local, State and Federal agencies.

In addition to the formal scoping meetings, numerous contacts have been made with various Federal, State, and local agencies, special interest groups, and individuals (see Chapter 5 of the Draft EIS). Additional public meetings on transmission line routing issues and alternatives were held by BLM and the U.S. Forest Service in Salt Lake City, Utah on January 16, 1980 and Price, Utah, on January 17, 1980.

The major issues identified in the scoping meetings as being of primary concern in analyzing the applicant's proposal were comparative financial costs of alternatives; social and economic impacts on communities in Utah and Colorado; degradation of air quality in the Uinta Basin and at Dinosaur National Monument (Dinosaur); impacts on endangered fish species in the Green and White Rivers; and effects on salinity in the Colorado River system.

ALTERNATIVES DISCUSSED

PLANT SITE ALTERNATIVES

Two plant sites, Bonanza and Rangely, have been analyzed.

The selection of the preferred and alternative sites is the final stage of the site evaluation process as conducted by Deseret under the direction of REA. Initially, an interdisciplinary team was convened and the site selection methodology was established and approved. All of the appropriate Federal, State, and local agencies were contacted by the team and their input was utilized to identify all potential constraints to siting within the established study area. The Interagency Task Force on Power Plant Siting considered several criteria in this process: land use suitability, construction and operational costs, socioeconomics, water, and ecology. Eventually 12 potential sites were selected for more intensive study. Through a process of elimination, this number was reduced to five candidate sites and eventually, through further screening, the two most viable sites were determined. The Rangely site, not part of the screening process, was included as one of the viable sites because of its proximity to the coal source. Next, the formal scoping process (described previously) was conducted jointly by BLM and REA. The relevant issues raised during the scoping process as they relate to the Bonanza and Rangely plant sites are evaluated in this document.

The Bonanza site in Utah was selected as an alternative site because of recommendations by the Interagency Task Force on Power Plant Siting and its proximity to the Green River which could be used as a water source. The Rangely site in Colorado was selected as an alternative site because of its proximity to the coal source at the Deserado Mine.

COAL SUPPLY ALTERNATIVES

Two sources of coal for the power plant have been analyzed for either the Bonanza or Rangely sites. These are development of the Deserado Mine or open market purchase (both include other Federal coal leases). The Deserado Mine is the applicant-proposed source.

COAL TRANSPORT ALTERNATIVES

Five modes of coal transport have been evaluated. These are: (1) electric railroad; (2) overland conveyor; (3) slurry-pipeline; (4) on-highway truck haulage; and (5) off-highway truck haulage. All of these modes are analyzed for the Bonanza plant site. Only the overland conveyor and off-highway truck haul are analyzed with the Rangely plant site. Deseret's proposed alternative for the Bonanza site is the electric railroad. Deseret's preferred system for the Rangely site is the overland conveyor.

WATER SOURCE ALTERNATIVES

The Green and White Rivers in Utah and Colorado have been identified as alternative sources of water. Water would be pumped to the plant site through a 36-inch-diameter pipeline. There is little known about ground water in the vicinity of the plant sites; however, test wells indicate that the water is of too low a volume and too poor a quality to be used for the project.

Water from the Green River would be removed through an off-stream system of collector wells and pumped to either the Bonanza or Rangely site. If water for the Bonanza site were taken from the White River in Utah, it would be withdrawn from the State of Utah's proposed White River Reservoir through a standard screened intake structure.

Water from the White River in Colorado would be used only at a Rangely plant. Water could be taken from one of two reservoirs (Taylor Draw or Wolf Creek) on the White River proposed by the Colorado River Water Conservation District (CRWCD) Water Users Association No. 1.

The applicant-proposed water source for the Bonanza plant is the Green River. The applicant-preferred source for the Rangely plant is the proposed Wolf Creek Reservoir.

Purchase of water by Deseret from Flaming Gorge Reservoir in Utah and from agricultural water rights in Colorado is also analyzed.

POWER TRANSMISSION SYSTEM ALTERNATIVES

Transmission system alternatives include both routing and system alternatives. In addition to the applicant-proposed route for the unit 1 345-kV line from the plant site to the Mona substation, other reasonable combinations of segments have been analyzed. Four alternative combinations have been identified for the future unit 2 345-kV transmission system to the Ben Lomond substation. One alternative route in addition to Deseret's proposed unit 1 138-kV system routes has been analyzed.

System alternatives include double circuiting, wheeling arrangements, tower sharing, and joint construction of transmission lines by Deseret and UP&L. With the exception of double circuiting, the feasibility of these system alternatives would be dependent upon successful private negotiations.

NO ACTION

The "No Action" alternative would involve the denial by Federal agencies of rights-of-way and other appropriate permits or the cancellation of the proposed project by Deseret. Such a decision could result from Federal agencies finding that it is in the public interest to deny the use of public lands or refuse a loan guarantee commitment for this project.

SUMMARY OF MAJOR ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVE AND THE PROPOSED ACTIONS

The following summary describes the impacts expected under a worst-case situation with construction of the two units assuming an 18-month delay between the first and second unit. Socioeconomic impacts presented for the plant sites also include the work force expected for the Deserado Mine and the electric railroad.

PLANT SITE ALTERNATIVES

The power plant would release pollutants into the atmosphere. Under worst-case analysis, all State and Federal standards would be met with 93.6-percent sulfur dioxide (SO_2) control at the Bonanza site and 94.9-percent control at the Rangely site. Future oil shale development could possibly be hindered because of use of Colorado Category I SO_2 increments at Dinosaur. Because of prevailing wind patterns, cumulative impacts from the Moon Lake project and oil shale development would more likely occur with a plant at Bonanza. There is insufficient data to determine the frequency of a visible plume, but under adverse meteorological conditions, a highly visible yellow-brown plume would be seen by visitors at Dinosaur. Impacts to visibility would probably occur less frequently from a Rangely plant than a Bonanza plant due to prevailing air flow patterns.

Withdrawal of water from the Green River could reduce the lowest recorded annual flow at Green River, Utah by 2 percent. Salinity, as measured in total dissolved solids (TDS), would increase by less than 0.8 milligrams per liter (mg/ℓ) in the Green River at Green River, Utah and 1 mg/ℓ in the Colorado River at Imperial Dam in California.

Riparian vegetation (82 acres at Bonanza and 77 acres at Rangely) would be disturbed and removed for the life of the project and beyond. The continued existence of any threatened or endangered plants would not be jeopardized.

As indicated by the U.S. Fish and Wildlife Service (USFWS), withdrawals of water from the Green or White Rivers for this project is likely to jeopardize the continued existence of three endangered fish species in the Colorado River system. However, if water were purchased from Flaming Gorge Reservoir for use on an "on-call" basis during low river flow seasons, thus replacing water which would otherwise be withdrawn from the Green River for the Moon Lake project, the endangered fishes would not be affected. Such purchase and use of Flaming Gorge water would require approval by the State of Utah and the Department of Interior. The approval is not assured at this time.

Development of the Bonanza plant would disturb antelope during the critical fawning season and would occupy 4 percent (1,840 acres) of the critical antelope fawning area and eliminate 51 percent of the range of the Bonanza wild horse herd. The Rangely plant site would occupy 2,202 acres of antelope summer range, not identified as critical.

Several cultural resource sites would be disturbed, and some scientific and educational information could be lost. There are 12 known cultural resource sites on the Bonanza plant site and 21 on the Rangely site. None of those on the Bonanza site are eligible to the National Register of Historic Places (National Register) and only one on the Rangely site may be eligible.

Construction of a power plant at either site would be out of character with the existing landscape.

Regardless of the plant site selected, there would be an increased demand on the already limited middle-income housing supply of Vernal and Rangely. Both Vernal and Rangely would have to expand or improve existing sewer and water systems and additional police, firemen, and health care personnel would be needed. Additional teachers and facilities would be needed in both communities in order to maintain present ratios.

An imbalance in property tax revenues and per capita expenditures by Uintah and Rio Blanco Counties for the project-induced populations could occur. With the Bonanza plant site, Rio Blanco County could spend more for services than would be replaced by property tax on Deseret-owned facilities but would receive additional revenue from tax on the Deserado Mine and a Colorado State coal severance tax. With the Rangely plant site, Uintah County would support project-induced populations without any Deseret-related property tax base. The Town of Dinosaur in Moffat County could receive relatively significant impacts but would not receive property tax from either the plant or mine. This analysis does not account for personal property tax, sales tax, state income tax, etc., on individuals which would increase revenues to the counties.

With either plant site, Vernal and Rangely would experience an influx of newcomers that could alter the prevailing social order. However, the project area has experienced substantial energy-related growth since World War II. Therefore, it can be expected that the social impacts associated with a typical boomtown scenario would not be as great as in communities that have not experienced prior energy development.

COAL SOURCE ALTERNATIVES

With the Deserado Mine, surface subsidence and earth fractures may occur on about 5,100 surface acres above the mine. Subsidence may be as much as 6 feet for long wall mining and 4 feet for room and pillar mining and may be abrupt. The subsidence would probably affect the Staley-Gordon Mine road.

The water requirement of the mine operation would be equivalent to 0.06 percent of the average flow and 0.14 percent of the lowest recorded annual flow of the White River in Colorado. The water quality of the White or Green Rivers would not be altered.

No threatened or endangered plant species would be affected by the Deserado Mine. Vegetation would be eliminated on about 1,200 acres for the life of the project, of which about 120 acres are riparian. This loss could affect prairie dogs, sage grouse, and golden eagles.

Withdrawal of water from the White River could jeopardize the continued existence of three endangered fish species during low-flow and drought conditions. However, if water normally withdrawn for irrigation were purchased by Deseret or Western Fuels for use in the coal mine operation, there would be no jeopardy to the species. Such a change in water use would require approval of the State of Colorado and is not assured at this time.

Forty-seven cultural sites, four of which may be eligible for the National Register, could be affected by ground disturbance or subsidence. Even with mitigation, some loss of scientific and educational information could occur.

The refuse disposal area would be out of character with the existing landscape.

The coal mine work force and population-related impacts were presented with Plant Site Alternatives section. Rangely would indirectly receive revenue through special taxing districts from tax on the Deserado Mine and some from the Colorado Coal Severance Tax. There would be some delay from the time the impact to Rangely would occur and when the severance tax would be available to help alleviate public service demands.

Based on current estimates of coal reserves at the Deserado Mine, open market purchase of coal may be required for 15 years of the projected 35-year life of the project if additional Federal leases contiguous to the Deserado Mine were not obtained by Western Fuels.

The source for open market purchase of coal has not been definitely identified. The environmental impacts of coal mining on existing Federal leases along with the projected production of non-Federal coal have or will be analyzed in Regional Coal Environmental Impact Statements (EIS). Environmental statements that apply to the area where coal could be purchased include the Northwest Colorado Regional Coal EIS and Supplemental Reports prepared by BLM in 1977 and 1979; Development of Coal Resources in Central Utah prepared by the Department of Interior, 1979; Green River-Hamms Fork Regional Coal EIS, 1980; Uinta-Southwestern Regional Coal Final EIS, 1981; and Development of Coal Resources in Central Utah Final EIS, 1979.

Impacts associated with open market purchase of coal would be from on-highway transport of coal as discussed in the Coal Transport section below.

COAL TRANSPORT ALTERNATIVES

All of the coal transport methods to either plant site would disturb small areas (up to 5 acres) of riparian vegetation and up to 21 cultural resource sites. One of the cultural resource sites along the railroad coal delivery conveyor may be eligible to the National Register. The continued existence of threatened or endangered plant species would not be jeopardized by any alternative.

Only the on-highway trucking alternative to the Bonanza site would create serious unavoidable adverse impacts to terrestrial wildlife. With this alternative, deer, sage grouse, and antelope mortality would increase on the affected highways. A slurry pipeline would utilize up to 0.62 percent of the lowest recorded annual flow from the White River.

With the on-highway truck haul to the Bonanza site, there would be approximately a 323-percent increase in daily traffic on Utah Highway 45 and up to 117 percent on the affected portion of U.S. 40. Trucks would create a safety hazard and several accidents per year could be expected. Highway damage with associated maintenance costs would increase. Noise levels at the Town of Dinosaur would increase to approximately 86 dBA (weighted sound level). Increases in frequency and magnitude of noise would occur.

WATER SOURCE ALTERNATIVES

Impacts on water quality and quantity of the Green and White Rivers with the Moon Lake project were presented in the discussion on the plant site alternatives. Anticipated impacts of construction of the Utah White River Dam, including impacts on endangered fish in the Colorado River system, inundation of cultural resources and mining claims, and loss of recreation on the White River were presented in a Draft EIS completed by BLM in December 1980. Summarized below are impacts that would be expected with construction of the Taylor Draw or Wolf Creek Reservoir and with purchase of agricultural water in the upper White River basin for use at the Rangely plant site. Additional engineering and environmental work would also be required for NEPA compliance before either reservoir could be built.

Water temperature would be reduced and natural flows would be altered below the dam. The dam would create a barrier and block the movement of fish including three endangered species in the White River. The endangered species would not utilize the altered habitat. About 50 acres of riparian vegetation would be inundated by the Taylor Draw Reservoir and 863 by the Wolf Creek Reservoir. No intensive inventories of threatened or endangered plants or cultural resources have been completed on either of the proposed reservoir areas. At least two known cultural resource sites would be disturbed or inundated by the Taylor Draw Reservoir, and two by the Wolf Creek Reservoir, all of which may be eligible to the National Register.

About 400 acres of irrigated land along with four ranch houses would be inundated by either reservoir. This represents 2.5 percent of the irrigated land in Rio Blanco County. Of the 400 acres that would be inundated if the Taylor Draw Reservoir were built, 176 acres have been identified as prime (irrigated) farmland. This represents 7 percent of prime farmland along the White River near Rangely.

About 3,100 feet of Colorado Highway 64 would have to be relocated with the Taylor Draw Reservoir.

The Wolf Creek Reservoir would inundate a suspension bridge across the White River which carries an exposed natural gas pipeline.

If Deseret were to purchase agricultural water from the White River, the potential reductions in flow cannot be accurately predicted. The intent of this alternative is to prevent changes during critical low-flow periods in the flow of the White River due to the Moon Lake project. However, irrigation water would be used only during the irrigation season and the winter flows of the river would still be altered by the project. Salinity in the river during the irrigation season (May through September) would be reduced through the elimination of irrigation return flows that are typically high in TDS.

Irrigation water may only be used on an as-needed basis to ensure adequate supplies of water during low flows in the river. Therefore, the frequency of need and the amount of agricultural land that would be retired cannot be accurately predicted. However, the amount of land retired could be significant since Deseret would require water equivalent to 47 percent of that presently used for irrigated agricultural land in the upper White River basin.

WATER TRANSPORT ALTERNATIVES

Construction of any of the water pipelines to the plant sites would disturb small areas of riparian vegetation (up to 6 acres) and up to three cultural resource sites. Of the sites that would be disturbed, only one, located along the Utah White River Reservoir to Bonanza pipeline, may be eligible to the National Register. Construction of the pipelines would not jeopardize the existence of any threatened or endangered plant or animal species. However, the corridor for the pipeline between the Green River and the Bonanza site would pass through the habitat of one plant species that has been proposed as threatened.

RECREATION-RELATED IMPACTS

Regardless of the plant site selected, recreation-related impacts from the project-induced population would occur within a secondary zone of influence. Most of these impacts would occur within a 2-hour driving distance from Vernal and Rangely. Impacts could include loss of scientific information from vandalism to paleontologic and cultural resources, poaching of an endangered cactus (Sclerocactus glaucus), harrassment and increased poaching and hunting of wildlife, increased fishing pressure, and overuse of recreational facilities. The impacts directly attributable to the project are expected to be small.

TRANSMISSION SYSTEM ALTERNATIVES

All of the transmission system routing alternatives would have the same types of impacts; however, the magnitude would vary depending on the miles of each resource found along the routes and the final placement of towers in the 1-mile-wide corridor. Unavoidable impacts would include localized erosion on severe erosion hazard areas, initiation or activation of slumping and slides, inadvertent destruction of threatened or endangered plants, disturbance of riparian and wet meadow vegetation, mortality of waterfowl and other birds from collision with conductors and towers, and loss of scientific and educational information due to disturbance of cultural resource sites.

Transmission lines would introduce a low to high increment of contrast at highway crossings and aesthetic values would be reduced. Several alternative routes would be visible from recreational areas.

The applicant-proposed alternatives for unit 1 and 2 345-kV lines would have important land use and land use planning conflicts including loss of prime commercial timber production on the Ashley National Forest, introduction of new access into two off-road vehicle closure areas on National Forest land, a conflict with a planned scenic loop road, and encroachment into urban areas. Based on a minimum sale price of $2.00 per 1,000 board feet, timber valued at $5,074 would be cut during the construction period and an annual loss of $304 in timber production would continue for the life of the project.

The applicant-proposed alternative for unit 1 across portions of the Uinta National Forest and across all of the Manti-LaSal National Forest could create extensive surface disturbance because of the steep topography, both parallel and transverse to the corridor. In addition, it could be possible that instability and slope failure would be induced by construction along the corridors on the referenced National Forests lands.

NO ACTION ALTERNATIVE

With the No Action alternative, a continuation of current environmental and socioeconomic growth trends would still be expected in the Vernal-Rangely region. However, if power supplies were insufficient, it could be detrimental to the overall welfare of the customers affected.

With delay, the cost of the Moon Lake project could increase by about $30 million per year. If available, after March 1985, Deseret's cost for power purchased from UP&L could increase 20 to 40 percent. If power were available for purchase on the open market beyond 1985, the price of power to Deseret could increase as much as 300 percent (in 1980 dollars).

REGULATORY COMPLIANCE WITH SELECT LAWS AND EXECUTIVE ORDERS

The Federal Clean Air Act was enacted to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population. The National Ambient Air Quality Standards (NAAQS) are limits on concentrations of specific pollutants and were set to protect human health and the public welfare. Prevention of Significant Deterioration (PSD) increments were set for certain pollutants to limit deterioration of air quality in areas with lower pollution levels than the NAAQS. All areas which could be affected by the applicant's proposal are designated as Federal PSD Class II areas. Class II areas allow air quality deterioration associated with moderate, well controlled growth. The Moon Lake project units 1 and 2 would comply with Class II incremental limitations, the NAAQS, and all other provisions of the Federal Clean Air Act.

Executive Order 11988 Floodplain Management, requires each Federal agency to consider flood hazards and floodplain management factors in carrying out or assisting any project located in a floodplain or impacting a floodplain. The water supply system would be the only project-related component affecting a floodplain. The impact of the collector-well system on the Green River floodplain would be minimal. Construction of water storage reservoirs on the White River in Colorado would permanently inundate floodplain areas upstream from the two impoundments.

Executive Order 11990, Protection of Wetlands, directs Federal agencies to avoid to the extent possible the destruction or modification of wetlands, and to avoid direct or indirect support of new construction in wetlands wherever there is a practical alternative. BLM Manual 6740, Wetland-Riparian Area Protection and Management establishes policy and procedures for the identification, protection, maintenance, enhancement, and management of the various wetland and riparian areas. The manual ensures that all wetlands-riparian areas, their unique characteristics, and their ecological requirements are managed in accordance with legislative, executive, departmental, and secretarial directions.

Acreages of riparian habitat that would be impacted by the power plant and raw material supply system alternative sites are given in table 4-9.

The loss of riparian acreage at the Bonanza or Rangely plant site, Deserado Mine and refuse disposal area, and the Wolf Creek and Taylor Draw Reservoirs would be mitigated to the extent possible. Some of the alternative transmission line segments cross riparian/wetland areas. Careful siting of centerline and placement of transmission tower bases would mitigate any potential adverse impacts.

The Endangered Species Act was enacted to provide for the conservation of threatened and endangered species of fish, wildlife, and plants, and to provide a means whereby the ecosystems upon which threatened and endangered species depend may be conserved.

A single specimen of an officially listed threatened plant species occurs along the applicant-proposed Green River to Bonanza water pipeline route. The formal biological opinion of the USFWS states that this species would not be adversely affected by this project.

The Moon Lake project would impact the Green or White Rivers by reducing flows. The formal biological opinion of the USFWS states that the Moon Lake project, as proposed, is likely to jeopardize the continued existence of the Colorado squawfish, the humpback chub, and the bonytail chub. However, the biological opinion identified "reasonable and prudent alternatives" which may be implemented to avoid jeopardy to the endangered fishes. There is no assurance at this time that such alternatives can be satisfactorily arranged prior to the date Deseret desires to start construction.

The only potential threat to terrestrial threatened or endangered species from the Moon Lake project would be caused by transmission lines crossing major flyways of the bald eagle and/or the whooping crane. Birds could collide with the lines but this impact would be mitigated by marking the lines to make them more visible. The official opinion of the USFWS is the Moon Lake project would not jeopardize the continued existence of these species.

The Wild and Free-Roaming Horse and Burro Act authorizes and directs the Departments of Interior and Agriculture to protect and manage wild free-roaming horses and burros as components of the public lands "... in a manner that is designed to achieve and maintain a thriving natural ecological balance on the public lands." The development of the Bonanza site would occupy approximately 6 percent of the range of the Bonanza wild horse herd. The impact would not result in the loss of any wild horses.

The Wilderness Act, as amended, requires inventory and review of roadless areas of 5,000 acres or more identified as having wilderness characteristics described in the Act. Under adverse meteorological conditions, the yellow-brown plume visible from Dinosaur National Monument would also be visible from wilderness study areas (WSAs) south of the Monument. While visibility impacts would be adverse, they would not outweight the wilderness values or preclude wilderness area designation of the affected WSAs. Except for the above, none of the project alternatives would impact a wilderness area or WSAs.

The Wild and Scenic Rivers Act requires each Federal agency to avoid or mitigate adverse effects on rivers identified in the Nationwide Inventory. Agencies are required to consult with the National Park Service prior to taking actions which could conflict with wild, scenic, or recreational river status on rivers in the Inventory. The proposed and alternative transmission systems would cross the Green and White Rivers and could conflict with the status of these rivers, which are currently being considered in the Nationwide Rivers Inventory.

Consultation with the Nation Park Service by BLM, REA, and Deseret prior to transmission line construction has been identified as adequate mitigation.

The National Historic Preservation Act is designed to protect properties included in or eligible for inclusion in the National Register through review and comment by the Advisory Council on Historic Preservation on Federal undertakings that affect such properties.

The State Historic Preservation Officers in Utah and Wyoming and the BLM have consulted and agreed to the measures which should be undertaken to protect cultural values should authorization be granted to use public lands administered by the BLM for the purpose of any of the actions discussed in the Draft and Final EIS. This agreement is authorized under the Federal Land Policy and Management Act and the National Historic Preservation Act.

Impacts to sites that may be affected by the project would be mitigated in accordance with measures agreed to by BLM and the affected states. The Colorado State Historic Preservation Officer has been advised of the project and its impact potential and has indicated a desire to review the Draft and Final EIS.

The Land and Water Conservation Fund Act directs that property acquired or developed with assistance from the Fund shall not be converted to other than public outdoor recreation uses without the approval of the Secretary of the Interior. The Secretary of the Interior shall approve such conversion only if it is found to be in accord with the then existing comprehensive statewide outdoor recreation plan and only upon such condition as deemed necessary to assure the substitution of other recreation properties of at least fair market value and of reasonably equivalent usefulness and location. Depending upon the centerline location of transmission lines, the proposed or alternative transmission systems could conflict with designated park and recreation areas. Right-of-way impingements to aqueduct, canal, and reservoir systems could also occur. Correct placement of transmission lines within the 1-mile-wide corridor would mitigate these impacts.

Secretary of Agriculture Memorandum No. 1827 Revised (Statement on Land Use Policy) states that major consideration must be given to important farm, range, and forestlands, and the long-range need to retain the productive capacity and environmental values of American agriculture and forestry. Land use alternatives must be explored that would minimize impacts on important farm, range, and forestlands, and, where possible, avoid decisions which irrevocably commit important lands to non-farmland, non-rangeland uses, thereby foreclosing the options of future generations. Approximately 400 acres of agricultural land would be inundated if either the Taylor Draw or Wolf Creek Reservoir water supply alternatives were selected with the Rangely plant site. Of the 400 acres that would be inundated if the Taylor Draw Reservoir were built, 176 acres have been identified as prime (irrigated) farmland. No prime farmlands have been identified in the Wolf Creek Reservoir area. Project-related urban expansion in Vernal could displace up to 29 acres of agricultural land (not prime by SCS standards).

Some of the 345-kV transmission route alternatives would cross varying amounts of agricultural lands; the maximum amount on any one complete route would be approximately 26.5 miles, some of which may be prime or unique farmland. However, agricultural activities would only be temporarily disrupted if the construction period were to occur during the season of use. During the life of the project, agriculture and grazing could continue within the transmission system right-of-way and, therefore, would not be substantially affected. Also, the amount of land taken out of production (900 square-feet per 345-kV tower base) by the tower structures, although minimal, could be further minimized by proper placement of the towers within the 1-mile-wide corridor.

Although no prime grazing lands have been identified on the power plant and raw material supply system alternatives, sheep grazing allotments would be impacted. The applicant-proposed Bonanza plant site would cause a forage loss of 150 animal unit months (AUMs). The Rangely alternative plant site would cause a forage loss of 112 AUMs. The applicant-proposed Deserado Mine portal area and refuse disposal area would cause a forage loss of 84 AUMs. The Taylor Draw Reservoir alternative water source would inundate 6 AUMs of forage and Wolf Creek 167 AUMs. A portion of segment 11 of the proposed transmission line in the vicinity of Strawberry Valley crosses prime grazing lands (Uinta National Forest, U.S. Forest Service, 1981). No forage loss would be expected on this segment 11 portion. Approximately 2,537,000 board feet (valued at $5,074) of commercial timber would be affected during the construction of the proposed unit 2 transmission line in segment 35. Up to 652,000 board feet (valued at $11,585) would be affected with construction of alternative segment 37. Timber production within the right-of-way would be lost for the life of the project.

In most cases, impacts on agricultural, grazing, and forest lands would be minimized to the extent practical.

Secretary of Agriculture Memorandum No. 1162 Supplement 8 (Civil Rights Considerations of Policy Actions) provides a mechanism whereby discrimination in proposed major policy actions can be detected and ameliorated before implementation. Components of the proposed project may cross Uinta-Ouray Reservation lands and may affect the Ute Tribe living within the two-county impact zone.

No significant adverse impacts from the proposed construction of an extra high voltage (EHV) transmission line across Ute lands have been identified. Deseret has adopted a board resolution providing for non-discrimination in employment with reference to race, color, sex, and national origin. Deseret would adopt an "Affirmative Action Program".

Deseret has contacted the Ute Indian Tribal Business Committee to determine their interest in providing construction workers as well as training future power plant operators. Deseret has provided a list of potential skills and positions to the Uinta Basin Vocational Center and is considering the possibility of developing a training and education program to prepare members of the Tribe for employment.

The proposed action would have no significant civil rights impact; therefore, no civil rights impact statement is required.

UNRESOLVED ISSUES AND AREAS OF CONTROVERSY

The following issues associated with development of the proposed Moon Lake project remain unresolved:

1. Air Quality: interstate pollution control.
2. Water Supply: the availability of a timely, reliable water supply for the Rangely plant site.
3. Endangered Species: whether withdrawal of 30 cfs from the Green or White Rivers for the Moon Lake project would jeopardize the continued existence of fish species in those rivers, and whether suitable alternatives can be arranged to avoid jeopardy.
4. Socioeconomics: there is a controversy over a potential imbalance of property tax revenues to be derived from Deseret-owned facilities and expenditures by Uintah County, Utah and Rio Blanco County, Colorado to provide services for the project-induced population. The magnitude of the imbalance is difficult to predict and assumptions in the predictive models are a point of controversy.

AIR QUALITY

A PSD permit has been issued by EPA for the Bonanza site in Utah; however, Colorado would object to a Utah power plant using up Colorado PSD increments. This issue will have to be resolved by the respective states.

WATER SUPPLY

Timing of the Rangely Reservoir project (Taylor Draw or Wolf Creek Reservoir) as a water supply for the Rangely plant site has been a continuous issue between Deseret and Colorado interests. Applications for the Taylor Draw portion of the Rangely Reservoir project have been filed with BLM and the U.S. Army Corps of Engineers by Water Users Association No. 1 of the CRWCD. However, no completion dates for NEPA compliance or the reservoir have been finalized. It is expected that the reservoir project would be delayed until January 1982 for USFWS determination of impacts on threatened and endangered fish in the Colorado River system.

The availability of water for the Rangely plant site is also controversial. The amount of water that can be made available to the project from the White River in Colorado depends on the amount of future water development and the amount of water that must be released from Colorado into Utah.

Estimates of future water use from the White River in Colorado require consideration of conditional water rights senior in priority to the water rights that Deseret could obtain. Under Colorado water law there are two basic types of water rights, absolute and conditional (see Glossary in the Draft EIS). Any conditional water right senior in priority to those available to Deseret may be developed subsequent to construction of the power plant, and the holder of such senior right would be entitled to use all of the water granted under his right even if such use reduced or completely depleted the water available for the project.

Controversy arises over assumptions on "reasonable" levels of future water use for Deseret's project. Deseret's position is that a guaranteed source of water for the entire life of the project must be available and future use could reduce the amount of water available for Deseret's use. Based on studies by Fleming (1975) and Western Engineers (1979), which conclude that even during drought years with liberal assumptions of upstream water development and a minimum annual average 200 cfs downstream flow, the Rangely Reservoir project would supply sufficient water for the Moon Lake power project. Even during drought years, the State of Colorado and Colorado Water Users Association No. 1 believe that water offered to Deseret would guarantee water to the project over its entire life. However, REA and Deseret do not agree with this position.

It is not known whether Colorado would be obligated to honor a water right granted to the Ute Tribe in Utah by the Winter's Doctrine which is a Federal decree given in 1882. The Winter's Doctrine does not specify a definite amount of water but ensures that the Ute Tribe in Utah has a right to substantial quantities of irrigation water from the White River. The amount of water is not yet agreed upon by the Ute Tribe and the priority date of the Ute water rights is not firmly established, but will most likely be either 1882 or 1948, possibly earlier in priority than conditional water rights held by Deseret or a perfected right offered to Deseret by the Town of Rangely.

Water Users Association No. 1 believe that the 200 cfs of flow shown to be available in the Fleming and Western Engineers studies is sufficient to meet Ute Tribal water rights and the needs of the State of Utah without affecting the yield of the Rangely Reservoir project. If the Ute Tribe is entitled to water from the White River to satisfy Winters Right claims that it may have, it is likely that any such claims would be chargeable to Utah's apportionment of Colorado River Basin waters as the Indian reservation is within Utah. This would be consistent with the precedent established by the United States Supreme Court in Arizona v. California, 373 U.S. 546, 83 Sup. Ct. 1468 (1963). Thus, while the water probably would not be chargeable to Colorado, it does not necessarily follow that Colorado would be free to take action within its boundaries and upstream from the reservation that would prevent the tribe from satisfying any Winters Right entitlements that it may have. It is doubtful that the courts would permit use of water in Colorado that would nullify legitimate Winters Right entitlements of Indian tribes located in Utah. Of course, the precise issue has not been considered by the courts and, until or unless it is, or the matter is otherwise resolved, uncertainty regarding it may continue.

Whether Colorado is obligated to leave certain flows in the White River so that the water may be used in Utah is an issue that apparently has scarcely been considered to date. As competition for use of water from the White River increases, it is probable that some division of the water from the stream between the two states will be made, whether by compact or judicial determination. As the White River flows partly in Utah and is a part of the Colorado system, and as Utah is entitled to the use of a fixed amount of water from the system under the Upper Colorado River Basin Compact, it is doubtful that Colorado could successfully maintain that it may consumptively use all of the water of the White River, if that were possible, and thus prevent use of at least part of it in Utah. At present, however, each State's specific entitlements in the river are uncertain and will have to wait for further efforts to determine them.

Water Users Association No. 1 has stated that a 16-cfs water right offered to Deseret by the Town of Rangely would be more than sufficient to satisfy the water requirements of the first generating unit should it come on line prior to completion of the Taylor Draw Reservoir. There is also question as to whether water could be pumped directly from the White River or whether a reservoir would be required to supply the project. December through February are generally the lowest flow months on the White River. To determine the feasibility of pumping directly from the White River without a reservoir, an annual daily and 2-week low-flow frequency analysis of the White River at the Utah-Colorado state line was made (Hansen, 1980a). Based on annual daily low flow, without any on-site water storage and without any further priority water right developments, and further assuming that the river could be completely dewatered, there would be insufficient water for the Moon Lake project about 1 in every 40 years. There would be about a 2-week supply of water stored on the plant site in a raw water storage pond. Based on the annual 2-week low-flow frequency, without any further priority water rights development and assuming that the river could be completely dewatered, the probability of insufficient water for the project would be approximately 1 year in every 100 years. If Colorado were required to release water into Utah to meet the Ute Tribal water rights, July and August would be critical periods. If Ute Tribal water rights are met during these months, there may be insufficient water 1 year in 7 during July and 1 year in 8.5 during August. Deseret indicates that this is not a reliable source of water.

The need for reservoir storage is further substantiated by Western Engineers (1979) who concluded that "in most years an adequate water supply exists, but in years like 1977-1978, there are periods when no water will be available without hold-over reservoir storage."

The BLM and REA have concluded that the Rangely Reservoir project could provide a viable source of water for the Moon Lake project. However, there are uncertainties surrounding the Utah-Colorado water rights and the development of the Rangely Reservoir project would require environmental analysis to meet NEPA compliance and complete the permitting process.

Water could potentially be supplied to the Rangely site in Colorado via pipeline from the Green River in Utah using a 30 cfs water right (Application No. 31368, 1959) held by Deseret. Whether or not the transfer could be made is controversial (see Appendix 2 of the Draft EIS).

The policy of the State of Utah would not allow the transfer of water for this project, even though such a transfer may be legally possible.

ENDANGERED SPECIES

Moon Lake's proposed water withdrawals have recieved an official jeopardy opinion. The USFWS believes that purchase of Flaming Gorge water for release during critical low flow periods in the Green River, and purchase of agricultural water to sustain flows in the White River during the irrigation season would mitigate potential impacts to the endangered fish. These alternatives may be complicated by water rights issues and time required for approvals for changes in points of diversion. Because of these uncertainties, the BLM has reinitiated consultation with USFWS under Section 7 of the Endangered Species Act to explore additional alternatives for avoidance of jeopardy. The BLM and REA could not allow construction of the project without assurance of compliance with the Endangered Species Act.

The USFWS official biological opinion for the Moon Lake project is not agreed upon by all experts. The position of the State of Utah and BIO/WEST (environmental consultant firm in Logan, Utah) is that, in and of itself, the withdrawal of 30 cfs from the Green or White Rivers for the Moon Lake project would not jeopardize the continued existence of the fish species. However, the EIS analysis which is based on the biological opinion indicates that the Moon Lake project, along with the cumulative impacts from other projects, could jeopardized the endangered fishes.

SOCIOECONOMICS

There is a controversy over a potential imbalance between property tax revenues to be derived from Deseret-owned facilities and expenditures by Uintah and Rio Blanco Counties to provide services for the project-induced population, i.e., who gets the tax base. The magnitude of the imbalance is difficult to predict and assumptions in the predictive models are a point of controversy.

If the power plant were built at the Bonanza site, Uintah County would receive funds in excess of expenditures and Rio Blanco County would likely fall short in meeting community service demands. However, shortfalls would be offset somewhat by receiving a portion of the coal severance tax that would be assessed to Deseret by the State of Colorado. Regardless of the site selected, Rio Blanco County would have the tax base of the Deserado Mine.

If the power plant were built at the Rangely site, Uintah County would receive no property tax revenue from tax on Deseret-owned facilities but would have to meet community service demands of the project-induced population that would live in that county.

The socioeconomic models used to project the number and distribution of the project-induced population have been controversial. Population projections presented in this Draft EIS have been independently reviewed for BLM and found to be reasonable. However, Colorado interests believe that estimates of the influx of people into Colorado are too low and, therefore, the projected impacts may likewise be low.

CHAPTER 1
THE PURPOSE AND NEED OF THE PROPOSED ACTION

INTRODUCTION

In accordance with the National Environmental Policy Act of 1969 (NEPA) (Public Law 91-190,1970), the Bureau of Land Management (BLM), U.S. Department of Interior (USDI), and Rural Electrification Administration (REA), U.S. Department of Agriculture (USDA), acting as joint-lead agencies, have prepared this document in response to the filing of right-of-way applications by the Deseret Generation and Transmission Cooperative (Deseret) for use of public land and an application by Deseret to REA for a loan guarantee commitment to facilitate project financing. Deseret proposes to use public lands in northeastern Utah and northwestern Colorado to develop the 800-megawatt (MW) Moon Lake power plant project (Moon Lake project), units 1 and 2 at a site near Bonanza, Utah and the Deserado underground coal mine near Rangely, Colorado.

This chapter identifies the purpose and need of the proposed project, the scoping procedures that were used in determining the more significant issues, those issues, and interrelationships between projects which could cause cumulative impacts. Major Federal Authorizing Actions required for this project are listed in Appendix 3 of the Draft EIS.

The Office of Surface Mining (OSM), USDI, has cooperated in the preparation of this document in response to the filing of a mining permit application on behalf of Deseret by Western Fuels, Utah, Inc., for mining Federal coal and the use of public land for the mine.

PURPOSE AND NEED FOR THE PROJECT

Deseret, headquartered in Sandy, Utah, was formed in 1978, and consists of six rural electric distribution cooperatives. These cooperatives are listed in table 1-1 and their service areas are shown in figure 1-1.

In 1979, the total number of customers served was approximately 24,945, with a coincident peak demand of 177.9 MW. Only Garkane Power Association and Moon Lake Electric Association (MLEA) have generating capacity. Garkane produces 3.0 MW of hydroelectric power and MLEA produces 0.5 MW of hydroelectric power. The balance of load and reserve requirements is purchased mainly from the Department of Energy's Western Area Power Administration (WAPA) and Utah Power and Light Company (UP&L).

Power purchases from WAPA are limited because of Colorado River Storage Project (CRSP) capacity limitations and the rest of Deseret's shortfall is acquired from UP&L at average system costs. Power requirements in excess of contracted amounts, if available, are provided by UP&L at unit cost plus a demand charge. In a June 1, 1979, Utah Public Service Commission (PSC) Order, UP&L was directed to terminate its wholesale power sale agreements with members of Intermountain Consumers Power Association (ICPA). Therefore, Deseret or its members cannot rely on UP&L for an adequate and reliable power supply beyond March 1985, and the purchased power costs would be significantly increased at that time. Appendix 4 of the Draft EIS provides additional information on the PSC order and its potential results.

TABLE 1-1

The Rural Electric Distribution Cooperative
Members of Deseret Generation and Transmission Cooperative

Member Cooperatives	Headquarters	Rural Electrification Administration Designation	Customers[a]
Bridger Valley Electric Association	Mt. View, Wyoming	Wyoming 9 Uinta	3,479
Dixie-Escalante Rural Electric Association	Beryl Junction, Utah	Utah 20 Iron	1,579
Flowell Electric Association	Fillmore, Utah	Utah 11 Millard	356
Garkane Power Association	Richfield, Utah	Utah 6 Garfield	4,387
Moon Lake Electric Association	Roosevelt, Utah	Utah 8 Duchesne	10,008
Mt. Wheeler Power, Inc.	East Ely, Nevada	Nevada 19 White Pine	5,136
		Total	24,945

[a] REA Bulletin 1-1, 1979 Annual Statistical Report.

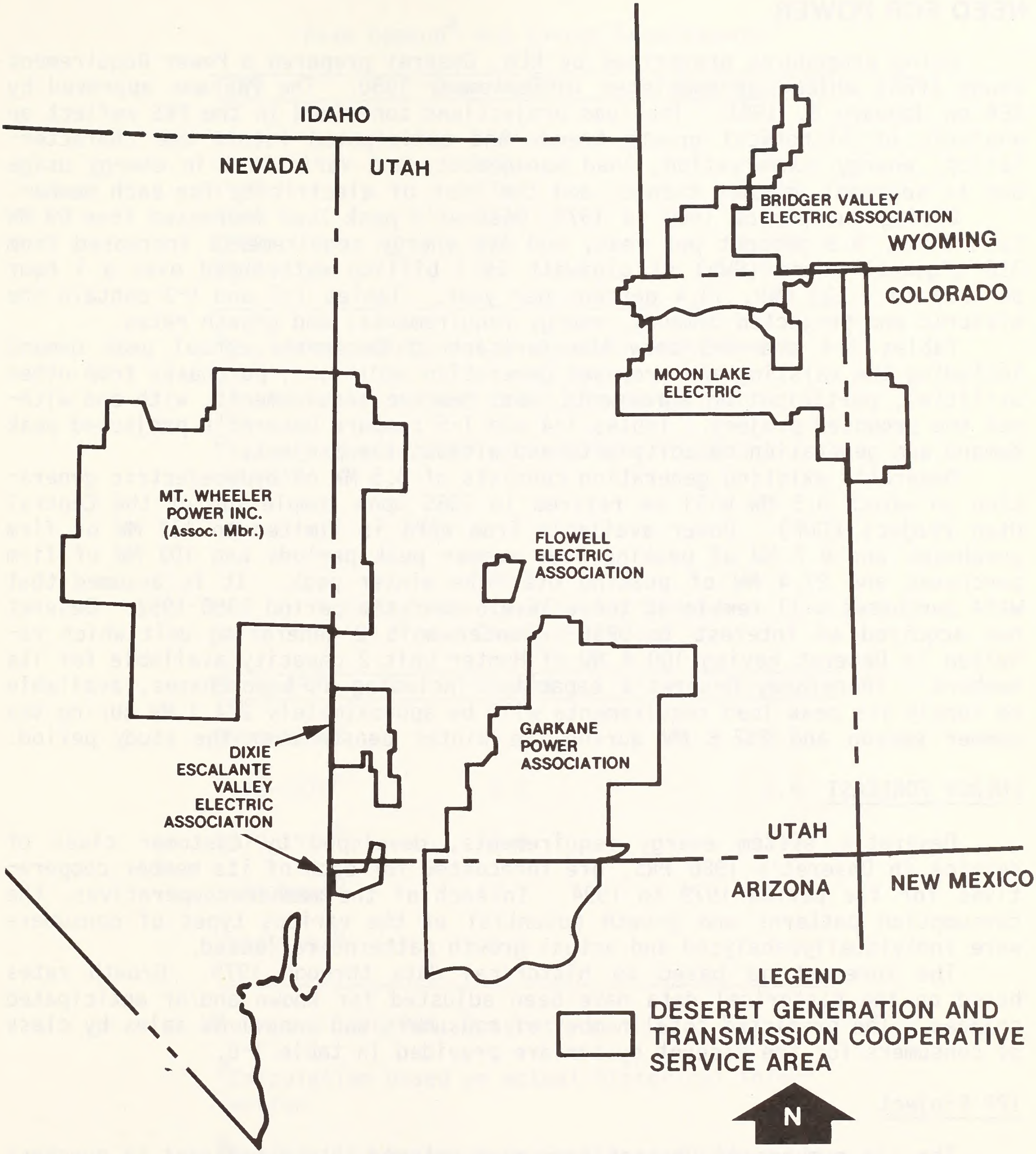

IDAHO
NEVADA
UTAH
BRIDGER VALLEY ELECTRIC ASSOCIATION
WYOMING
COLORADO
MOON LAKE ELECTRIC
MT. WHEELER POWER INC. (Assoc. Mbr.)
FLOWELL ELECTRIC ASSOCIATION
GARKANE POWER ASSOCIATION
DIXIE ESCALANTE VALLEY ELECTRIC ASSOCIATION
UTAH
ARIZONA
NEW MEXICO
LEGEND
DESERET GENERATION AND TRANSMISSION COOPERATIVE SERVICE AREA
N

FIGURE 1-1

SERVICE AREA OF DESERET GENERATION AND TRANSMISSION COOPERATIVE

NEED FOR POWER

Using procedures prescribed by REA, Deseret prepared a Power Requirement Study (PRS) which was completed in September 1980. The PRS was approved by REA on January 6, 1981. The load projections contained in the PRS reflect an analysis of historical growth trends and anticipated future use characteristics, energy conservation, load management, and variations in energy usage due to seasonal weather changes and the cost of electricity for each member.

During the period 1969 to 1979, Deseret's peak load increased from 69 MW to 178 MW, 9.9 percent per year; and its energy requirements increased from 316 gigawatt hours (GWh) (1 gigawatt is 1 billion watts used over a 1 hour period) to 1,113 GWh, 13.4 percent per year. Tables 1-2 and 1-3 contain the historic and projected demands, energy requirements, and growth rates.

Tables 1-4 and 1-5 show the forecast of Deseret's annual peak demand including the existing and proposed generation additions, purchases from other utilities, participation agreements, and reserve requirements, with and without the proposed project. Tables 1-4 and 1-5 compare Deseret's projected peak demand and generation capacity with and without the project.

Deseret's existing generation consists of 3.5 MW of hydroelectric generation of which 0.5 MW will be retired in 1985 upon completion of the Central Utah Project (CUP). Power available from WAPA is limited to 112 MW of firm purchases and 8.7 MW of peaking over summer peak periods and 102 MW of firm purchases and 27.4 MW of peaking over the winter peak. It is assumed that WAPA purchases will remain at these levels over the period 1980-1992. Deseret has acquired an interest in UP&L's Hunter unit 2 generating unit which resulted in Deseret having 100.4 MW of Hunter unit 2 capacity available for its members. Therefore, Deseret's capacity, including WAPA purchases, available to supply its peak load requirements will be approximately 224.1 MW during the summer season and 232.8 MW during the winter season over the study period.

ENERGY FORECAST

Deseret's system energy requirements, developed by customer class of service in Deseret's 1980 PRS, are forecasted for each of its member cooperatives for the period 1979 to 1994. In each of the member cooperatives, the consumption patterns and growth potential of the various types of consumers were individually analyzed and actual growth patterns reflected.

The forecast is based on historical data through 1979. Growth rates based on the historical data have been adjusted for known and/or anticipated changes. The predicted total number of consumers and annual MW sales by class of consumers for the Deseret system are provided in table 1-6.

IPP Project

The six members of Deseret have each entered into a contract to purchase a share of the output of the Intermountain Power Project (IPP). IPP is a 3,000 MW coal-fired power plant being planned by Intermountain Consumers Power Association (ICPA) in association with several California utilities. ICPA membership consists of 30 municipal utilities or cooperatives in Utah, eastern Nevada, and southern Wyoming. The six members of Deseret also are members of ICPA, and, therefore, are part-sponsors of IPP. Collectively Deseret's members have the right to purchase 5.865 percent or roughly 44 MW from each IPP unit. The IPP units are currently planned to become operational as follows:

TABLE 1-2

Peak Demand[a] and Energy Requirements[b]

Year	Demand (MW)	Energy (GWh)
1969[c]	69	316
1974	120	744
1979	178	1,113
1984	327	2,114
1989	650	4,098
1994	955	5,911

[a] Estimated coincidental seasonal peak demand.

[b] Includes losses and sales for resale.

[c] Years prior to 1970 exclude data for Mount Wheeler.

TABLE 1-3

Annual Growth Rate for Demand and Energy--Percent

Period	Demand	Energy
1969-1974[a]	11.7	18.7
1974-1979[a]	8.2	8.4
1979-1984[b]	12.9	13.7
1984-1989[b]	14.7	14.2
1989-1994[b]	8.0	7.6

Source: 1978 PRS, Deseret.

[a] Calculation based on actual historical information.

[b] Calculation based on projections of coincidental peak demand.

TABLE 1-4

Deseret Member Forecast of Peak Demand and Capacity Requirements
Without Moon Lake Project
(Winter Season)

	MW						
Year	Peak Demand[a]	Reserve Requirements[b]	Load Requirements	Generation[c]	Power Purchases[d]	Capacity Available	Capacity Excess (Deficiency)
1981	238.2	15.1	253.3	103.9	149.4	253.3	-0-
1982	269.1	15.1	284.2	103.9	180.3	384.2	-0-
1983	303.9	15.1	319.0	103.9	215.1	319.0	-0-
1984	343.2	15.1	358.3	103.9	254.4	358.3	-0-
1985	371.6	41.2	412.8	103.4	129.4	232.8	(180.0)
1986	402.3	46.4	448.7	103.4	129.4	232.8	(215.9)
1987	478.5	59.3	537.8	103.4	129.4	232.8	(305.0)
1988	557.6	72.8	630.4	103.4	129.4	232.8	(397.6)
1989	682.4	94.0	776.4	103.4	129.4	232.8	(543.6)
1990	736.1	103.1	839.2	103.4	129.4	232.8	(606.4)
1991	794.4	113.1	907.5	103.4	129.4	232.8	(674.7)
1992	858.0	123.9	981.9	103.4	129.4	232.8	(749.1)
1993	927.3	135.6	1,062.9	103.4	129.4	232.8	(830.10
1994	1,002.8	148.5	1,151.3	103.4	129.4	232.8	(918.5)
1995	1,046.4	155.9	1,202.3	103.4	129.4	232.8	(969.5)
1996	1,092.9	163.8	1,256.7	103.4	129.4	232.8	(1,023.9)
1997	1,142.4	172.2	1,314.6	103.4	129.4	232.8	(1,081.8)
1998	1,195.0	181.2	1,376.2	103.4	129.4	232.8	(1,143.4)
1999	1,250.9	190.7	1,441.6	103.4	129.4	232.8	(1,208.8)

Sources: Deseret and Burns and McDonnell.

[a] Peak loads from Power Requirements Study, plus 5 percent for transmission system losses.

[b] Reserves equal 17 percent of peak demand less firm purchase.

[c] Reflects Deseret's 100.4 MW interest in UP&L's Hunter unit no. 2, plus 3.5 MW hydro until 1985 when hydro drops to 3.0 MW.

[d] Includes purchase from WAPA, 102.0 MW firm and 27.4 MW peaking and supplemental purchases of firm capacity from UP&L which will be available through March 1985.

TABLE 1-5

Deseret Member Forecast of Peak Demand and Capacity Requirements
With Moon Lake Unit 1
Winter Season

	MW						
Year	Peak Demand	Reserve Requirements[a]	Load Requirements	Generation[b]	Power Purchases[c]	Capacity Available	Capacity Excess (Deficiency)
1981	238.2	15.1	253.3	103.9	149.4	253.3	-0-
1982	269.1	15.1	184.2	103.9	180.3	284.2	-0-
1983	303.9	15.1	319.0	103.9	215.1	319.0	-0-
1984	343.2	15.1	358.3	103.9	254.4	358.3	-0-
1985	371.6	41.2	412.8	395.8[d]	129.4	525.2	112.4
1986	402.3	46.4	448.7	398.8[e]	129.4	528.2	79.5
1987	478.5	59.3	537.8	401.8	129.4	531.2	(6.6)
1988	557.6	72.8	630.4	764.8[f]	129.4	894.2	263.8
1989	682.4	94.0	776.4	767.8	129.4	897.2	120.8
1990	736.1	103.1	839.2	767.8	129.4	897.2	58.0
1991	794.4	113.1	907.5	767.8	129.4	897.2	(10.3)
1992	858.0	123.9	981.9	931.8[g]	129.4	1,061.2	79.3
1993	927.3	135.6	1,062.9	931.8	129.4	1,061.2	(1.7)
1994	1,002.8	148.5	1,151.3	931.8	129.4	1,061.2	(90.1)
1995	1,046.4	155.9	1,202.3	931.8	129.4	1,061.2	(141.1)
1996	1,092.9	163.8	1,256.7	1,291.8[h]	129.4	1,421.2	164.5
1997	1,142.4	172.2	1,314.6	1,291.8	129.4	1,421.2	106.6
1998	1,195.0	181.2	1,376.2	1,291.8	129.4	1,421.2	45.0
1999	1,250.9	190.7	1,441.6	1,291.8	129.4	1,421.2	(20.4)

Sources: Deseret and Burns and McDonnell.

[a] Reserves equal 17 percent of peak demand less firm purchase.

[b] Reflects Deseret's 100.4 interest in UP&L's Hunter Unit No. 2 plus 3.5 MW hydro until 1985 when hydro drops to 3 MW.

[c] Includes purchases from WAPA, 102.0 MW firm and 27.4 MW peaking and supplemental purchases for firm capacity from UP&L which will be available through March 1985.

[d] Moon Lake unit 1 provides 292.4 MW to Deseret members. Deseret proposes to allow ICPA municipals to own 67.6 MW.

[e] Deseret's member, Mt. Wheeler, takes 3 MW from each unit of IPP as they come on line 1986, 1987, 1988, and 1989.

[f] Moon Lake unit 2 provides 360 MW to Deseret members.

[g] Deseret and its members utilize 164 MW of IPP capacity for which members have contracted.

[h] It is assumed a future 400 MW (360 MW net) unit is added at some site not yet identified.

TABLE 1-6

Forecasted Number of Consumers[a] and Annual MWh Sales By Class of Consumer: Utah 21 Deseret[b]

	1979		1984		1989		1994	
	MWh	Consumers	MWh	Consumers	MWH	Consumer	MWH	Consumer
Residential	189,795	19,030	315,175	26,262	465,511	34,408	651,485	44,066
Irrigation	97,118	1,206	124,986	1,492	159,332	1,711	205,177	1,942
Security Lights	55	(75)	82	(99)	107	(129)	139	(168)
Small Commercial	67,725	3,436	87,069	3,905	109,703	4,433	128,150	4,787
Public Streets and Highway Lighting	2,072	110	2,287	108	2,561	116	2,874	125
Public Building	4,243	237	5,295	253	6,122	273	6,996	292
Large Commercial	632,454	941	1,392,857	1,112	2,137,904	1,233	2,910,506	1,339
MX Missile System	-0-	-0-	-0-	-0-	937,960	1	1,620,040	1
Borrowers Own Use	1,906	(5)	2,889	(5)	2,930	(5)	2,971	(5)
Sale for Resale	14,762	9	30,000	1	40,500	1	49,500	1
Total Sales	1,010,098	24,962	1,960,642	33,133	3,862,631	42,177	5,577,840	52,553
Requirements Including Losses	1,113,376		2,119, 362		4,106,084		5,913,996	
Percent Losses	9.3%		7.5%		5.9%		5.7%	

Source: Deseret's 1980 PRS.

[a] Numbers in parentheses were not included in the totals.

[b] Numbers in table are summations of estimates provided in each member's Power Requirement Study.

unit 1 - 1986, unit 2 - 1987, unit 3 - 1988, and unit 4 - 1989. Deseret needs capacity by March 1985 and in amounts significantly larger than available from IPP. Deseret's members, therefore, propose to market most of their IPP capacity through 1991 to the California municipalities which are also participating in IPP. Deseret plans to construct Moon Lake unit 1 by March 1985 when its contract with Utah Power and Light Company for supplemental power terminates. It plans to construct Moon Lake unit 2 by 1988 which would most efficiently utilize the fuel supply, cooling water supply, and other common facilities related to the Moon Lake power plant. The Moon Lake units are predicted to be fully loaded in 1991, and it is planned that Deseret will utilize its IPP power in 1992.

Residential

The number of residential customers, including seasonals, and the associated annual energy sales over the 1969-1979 period grew at about 12-percent and 18-percent annual compound rates, respectively. It should be noted that the growth rates reflect loads associated with the Mt. Wheeler power coming into operation during 1969. The historic and future growth rates reflect increased employment in mining and industry, development of recreation areas, and growth in the number of all-electric homes. The total number of residential consumers and the associated energy sales for the Deseret system are projected to increase at annual compound growth rates of 6.7 percent and 10.7 percent, respectively, over the period 1979 to 1984; and at annual rates of 5.6 percent and 8.1 percent, respectively, over the period 1984 to 1989.

Small Commercial and Industrial (SC&I)

Most SC&I customers provide goods and services to the residents in their surrounding area. SC&I sales grew at an annual compound rate of more than 16 percent during the period 1969 to 1979. Projected sales are expected to increase at compound rates of 5.2 percent, 4.7 percent, and 3.2 percent, respectively, for the periods 1979-1984, 1984-1989, and 1989-1994. The decrease in the growth rate in latter years reflects saturation of retail establishments in the service area.

Large Commercial and Industrial (LC&I)

Energy sales for this customer classification grew at a compound growth rate of over 12 percent between 1969 and 1979, much of which reflects extensive oil well development. Sales to oil companies whose transformer size exceeds 350 KVA (kilovolt-amperes) with producing wells were 173.6 GWh, 28 percent of total LC&I sales in 1979. These sales are expected to increase only moderately in response to the development of new wells in the service area of Mt. Wheeler and secondary and tertiary recovery methods in existing fields in the service areas of Mt. Wheeler and MLEA. In 1989, sales to companies with producing oil wells are projected at 307.0 GWh, 14 percent of total LC&I sales, not including sales related to the MX missile system.

Potential development of the Alton and Kaiparowits coal fields in the service territory of the Garkane Power and the development of White River and Rio Blanco Oil Shale projects in the area supplied by MLEA, could significantly add to Deseret's power requirements as indicated in table 1-7. These loads have been included in the large commercial estimates provided in table 1-6.

TABLE 1-7

Future Power Requirements

	GWh		
	1984	1989	1994
Coal Fields	96.5	465.0	936.9
Oil Shale[a]	153.0	370.0	600.0
Total	249.5	835.0	1,536.9
Percent of Total LC&I	17.9	39.1	52.8

Source: Deseret's 1980 PRS.

[a] Estimates of power requirements for oil shale projects are based on information provided by project management. Processes for shale oil extraction are in pilot or development stage.

These developments could also increase the power requirements of the residential and small commercial consumer classes.

PEAK LOADS

During the period 1969 to 1979, Deseret's peak load increased at a compound rate of 9.9 percent. Projected peaks are expected to grow at a compound annual rate of 12.9 percent from 1979 to 1984, and 14.7 percent from 1984 to 1989, reaching 650 MW in 1989.

The peak load forecast does not reflect all the potential mining and oil shale developments which are foreseen in the service area over the next decade.

GENERATION PLANNING

To assist Deseret in its planning, a Preliminary Power Cost Study was prepared in February 1980.

Based on the results of that study, it was concluded that a power supply plan involving development of the Moon Lake power plant and associated transmission system is the most economical and reliable resource plan. Further, it recommended that Deseret conclude its participation agreement with UP&L in the Hunter 2 project as soon as practical and that Deseret enter into contractual arrangements to sell any surplus capacity and/or energy in the regional bulk power supply market. A Final Power Cost Study was prepared in February 1981 which updated the material based on the 1980 PRS. This study reached essentially the same conclusion as the preliminary study. It does conclude that Moon Lake unit 2 should be constructed for 1988 operation. In order to meet this schedule, construction of unit 2 need not be initiated until 1983. This would give Deseret 2 years to determine whether loads are increasing as forecasted in the PRS. While his Final EIS examines the environmental effects of a two unit generating station and related facilities, Deseret has not applied to REA for financing assistance of the second unit. If additional loads develop as anticipated, Deseret can arrange the fainancing of unit 2 in the future. If REA financing assistance is to be utilized, a subsequent REA decision regarding the need for and the economic viability of unit 2 will be required.

Cancellation or delay of unit 1 of the Moon Lake power plant beyond March 1985 would adversely affect Deseret's ability to provide adequate economic power and energy to its members in view of the June 1, 1979, Utah Public Service Commission Order.

THE SCOPING PROCESS

Three scoping meetings have been held by BLM-REA and Deseret to identify the significant issues related to the project. These meetings were held at Ft. Duchesne, Utah, on May 29-31, 1979; Rangely, Colorado, on September 10, 1979; and Vernal, Utah, on September 11, 1979. The meetings held in Rangely and Vernal were for the general public. The meeting held at Fort Duchesne was for local, State and Federal agencies.

In addition to the formal scoping meetings, numerous contacts have been made with various agencies and individuals. Additional public meetings on transmission line routing issues and alternatives were held by BLM and the U.S. Forest Service in Salt Lake City, Utah, on January 16, 1980 and Price, Utah, on January 17, 1980.

The major issues identified in the scoping meetings are:

1. Cumulative population impacts with White River Reservoir and oil shale development related population growth.
2. The socioeconomic impacts of the project and comparative capability of Vernal and Rangely to support the required population expansion.
3. The tax base problems if the plant were built in Utah but workers live in Rangely, Colorado and vice versa.
4. How tax base would be used to mitigate impacts.
5. Use of funds from the oil shale trust fund for mitigation of economic impacts.
6. Socioeconomic impacts in Roosevelt, Utah.
7. Impacts on people if no additional energy is generated (impacts of no action).
8. Secondary benefits to communities from the generation and use of electricity.
9. Energy efficiency of the Rangely versus Bonanza site and co-generation potentials.

10. Comparison of costs of electricity to the consumer for the Rangely and Vernal project sites.

11. Cost of transporting water to the coal source (Rangely site) versus transporting coal to the water source (Bonanza site).

12. The future use of oil shale and tar sands as fuel for the power plant to offset costs of locating the power plant at Bonanza (away from the coal source).

13. Possible use of Deseret power transmission lines for transporting oil-shale-generated electricity.

14. The impact of the project on Utah State land.

15. The relationship of transmission lines to U.S. Forest Service land use and corridors.

16. Interactions of the project with the oil shale leasing program.

17. Cumulative impact of the oil shale development and Moon Lake project on air quality.

18. The impact of airborn emissions from the plant.

19. Degradation of air quality in Dinosaur National Monument and the general area.

20. The availability of adequate water supply from the White River in Colorado.

21. Effects of water withdrawal on salinity in the Colorado River and cumulative impacts with the CUP.

22. The effect of water withdrawal from the Green or White Rivers on threatened and endangered fish. These effects should be put in perspective with oil shale development, the White River Dam project, and the CUP.

23. Impact on private land from water withdrawal.

24. Effect on agriculture in the vicinity of the project.

25. Effects on game and non-game wildlife.

26. Effects on cultural resources.

27. Equal treatment of alternative sites in this Draft EIS.

Alternatives identified in the scoping process for inclusion in the Draft EIS are:

1. No action.
2. Railroad or coal slurry line versus conveyor.
3. The potential for use of other energy alternatives versus electrical generation (cumulative energy alternatives).
4. Alternate transmission line routing.
5. Transmission line right-of-way and tower sharing.
6. Market and service area exchange by utilities as an alternative to transmission line construction.

All of the issues and alternatives listed above were investigated and analyzed. These issues are addressed in the appropriate section of this Draft EIS, as well as those issues and alternatives required by law and regulation, and those identified during development of the document.

INTERRELATIONSHIP WITH OTHER PROJECTS

TRANSMISSION SYSTEMS

Figure 1-2 shows the portions of the proposed Moon Lake transmission system that would parallel existing power transmission lines. The following describes those existing lines that would be paralleled by the segments designated in figure 1-2.

a. Deseret's proposed transmission corridor from the Bonanza or Rangely site to Mona would parallel:
    1. An existing MLEA 69-kV line in segments 9 and 10 (see the pocket map at the back of the Draft EIS for location of segments).
    2. An existing Western Area Power Administration (WAPA) 138-kV line in segment 26.
    3. Existing UP&L 138-kV and MLEA 138-kV lines in segments 9 and 10.
    4. Existing UP&L 44-kV, 138-kV, and 345-kV lines in segment 24.

b. Deseret's proposed transmission corridor from the Bonanza or Rangely site to Ben Lomond would parallel:
    1. An existing MLEA 69-kV line in segments 32 and 34.
    2. An existing WAPA 138-kV line in segment 26.

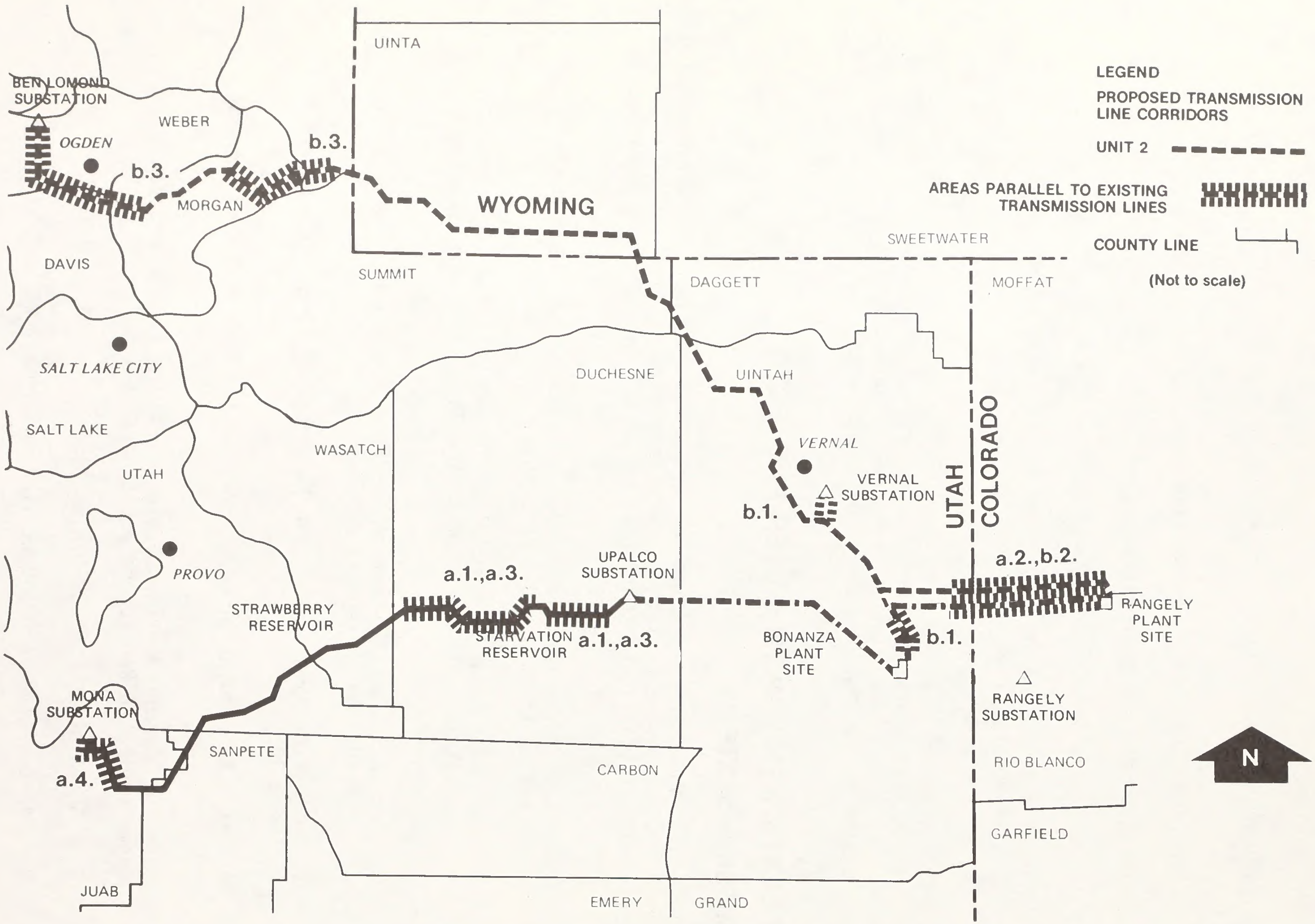

LEGEND
PROPOSED TRANSMISSION LINE CORRIDORS
UNIT 2
AREAS PARALLEL TO EXISTING TRANSMISSION LINES
COUNTY LINE
(Not to scale)
N
UINTA
WYOMING
SWEETWATER
SUMMIT
DAGGETT
MOFFAT
BEN LOMOND SUBSTATION
OGDEN
WEBER
b.3.
b.3.
MORGAN
DAVIS
SALT LAKE CITY
SALT LAKE
UTAH
PROVO
WASATCH
DUCHESNE
UINTAH
VERNAL
VERNAL SUBSTATION
b.1.
UTAH
COLORADO
a.2.,b.2.
RANGELY PLANT SITE
b.1.
UPALCO SUBSTATION
a.1.,a.3.
a.1.,a.3.
STRAWBERRY RESERVOIR
STARVATION RESERVOIR
BONANZA PLANT SITE
RANGELY SUBSTATION
RIO BLANCO
GARFIELD
MONA SUBSTATION
a.4.
SANPETE
CARBON
JUAB
EMERY
GRAND

FIGURE 1-2

INTERRELATIONSHIPS OF THE PROPOSED MOON LAKE TRANSMISSION LINE CORRIDORS

3. An existing UP&L 230-kV line in segment 35 and existing UP&L 230-kV (2), 138-kV (3), and 345-kV (1) lines in segment 31.

Regional transmission system interrelationships are shown in figure 1-3.

UTAH WHITE RIVER DAM PROJECT

The Utah Board of Water Resources, acting through the Utah Division of Water Resources, is sponsoring construction of a dam on the White River about 6 miles southwest of Bonanza, Utah. The construction schedule for this dam has not been finalized, but construction would likely overlap with the Moon Lake power plant construction schedule. The reservoir has been identified by Deseret as an alternative water source. The potential impacts of this reservoir were analyzed by the BLM in the White River Dam Project Draft EIS published November 1980.

RANGELY RESERVOIR PROJECT

Water Users Association No. 1 of the Colorado River Water Conservation District (CRWCD) is proposing to build a reservoir on the White River near Rangely. A $13-million bond to build a reservoir at the Taylor Draw site was approved in August 1980.

An initial engineering feasibility study for the project has been prepared by Western Engineers of Grand Junction, Colorado. An environmental assessment has been prepared for Western Engineers by Fleming (1979). Applications for rights-of-way or permits have been filed with BLM and the U.S. Corps of Engineers. The impacts of this project will be analyzed in an independent NEPA document. A preliminary analysis is included in this Draft EIS. The lead agency for preparation of the study has not been designated. If approved, the construction of the reservoir would take place during the same time period as the Moon Lake project.

OIL SHALE DEVELOPMENT

Several potential oil shale developments on Federal lands in the Vernal-Rangely region could also affect the area. These include the White River Shale project in Utah and the Rio Blanco and Occidental projects in Colorado. The potential environmental impacts of oil shale leasing in the region were analyzed in the Prototype Oil Shale Leasing Program Final EIS prepared by the USDI in 1973. In addition to oil shale projects on Federal lands, there are others (TOSCO, Geokinetics) on State and private lands. The cumulative population, air quality, and water use impacts of oil shale development and the Moon Lake project are analyzed in this Draft EIS, to the extent that oil shale plans are known.

Use of the oil shale trust fund is a discretionary action by individual state legislatures to mitigate socioeconomic impacts.

OIL AND GAS LEASING

Environmental analyses (EA) on oil and gas leasing in the Vernal-Rangely region have been prepared by the Vernal, Utah, and Craig, Colorado, Districts of the BLM. The EAs are general in nature but outline areas where Federal oil and gas leasing are allowed. The relationship of oil and gas leases to the Moon Lake project is analyzed in this Draft EIS.

REGIONAL COAL DEVELOPMENT

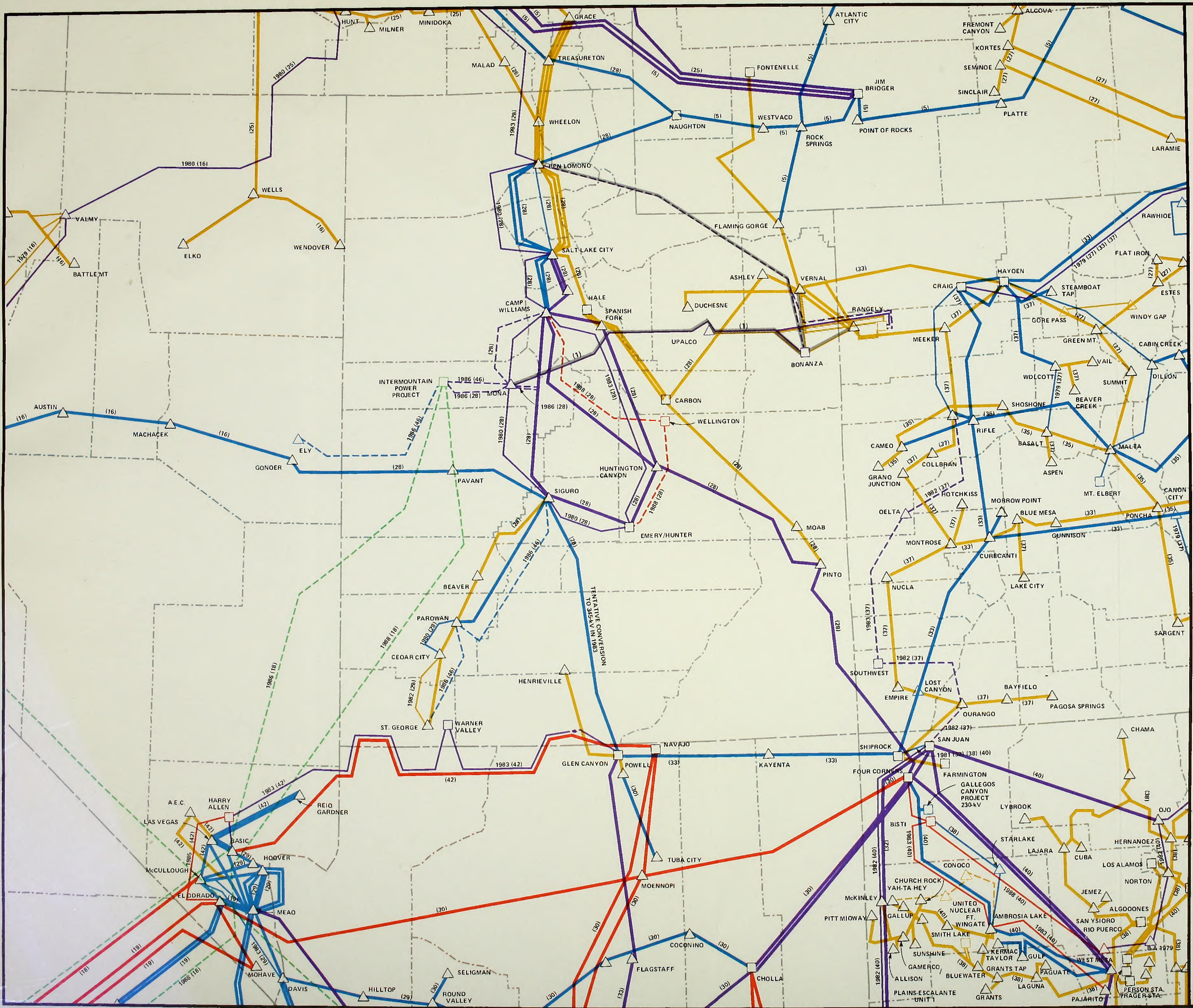
Potential coal source areas involved with the Moon Lake project are analyzed in regional coal environmental impact statements. The Northwest Colorado Coal Final Environmental Statement (1976) analyzes Colorado coal sites, the Green River-Hamms Fork Draft Environmental Impact Statement Coal (1980) analyzes Wyoming-Colorado coal sites, the Development of Coal Resources in Central Utah Final Environmental Impact Statement (1979) and the Uinta-Southwestern Utah Final Environmental Impact Statement Coal (1981) analyze Utah coal sites.

ROCKY MOUNTAIN PIPELINE PROJECT

The Moon Lake project could also relate to the proposed Rocky Mountain Pipeline project which would carry natural gas from Wyoming to California. Construction of the pipeline is proposed for April 1982 to November 1982. About 46 miles of the proposed pipeline route parallels proposed and alternative transmission line routes. BLM and the Federal Energy Regulatory Commission (FERC) are studing alternatives for the proposed route as well as total system alternatives for the Rocky Mountain Pipeline project. Resulting changes in the Rocky Mountain Pipeline routing could affect the final decision regarding the Moon Lake project transmission line routings since corridor sharing is a major criteria for decisions on preferred routes. An EIS on the Rocky Mountain Pipeline project is being prepared by BLM and the FERC and will be completed in 1981.

HYDROPOWER PROJECTS

The proposed power plant (two 400-MW units) would consumptively use 17,470 acre-feet per year (24 cfs) of water. This flow reduction would reduce energy generation at downstream hydroelectric plants. This lost generation would total approximately 20 MW per year at Colorado River hydropowered facilities. Reduction in downstream hydropower was planned as the upper basin states use their water allocation prescribed under the Colorado River Basin Compact.


HUNT
MILNER
MINIDOKA
GRACE
TREASURETON
MALAD
ATLANTIC CITY
FREMONT CANYON
ALCOVA
KORTES
SEMINOE
SINCLAIR
PLATTE
FONTENELLE
JIM BRIDGER
POINT OF ROCKS
ROCK SPRINGS
WESTVACO
NAUGHTON
WHEELON
LARAMIE
BEN LOMOND
WELLS
ELKO
WENDOVER
VALMY
BATTLE MT
FLAMING GORGE
RAWHIDE
SALT LAKE CITY
ASHLEY
VERNAL
RANGELY
CRAIG
HAYDEN
STEAMBOAT TAP
FLAT IRON
ESTES
WINDY GAP
GORE PASS
GREEN MT.
CABIN CREEK
HALE
CAMP WILLIAMS
SPANISH FORK
DUCHESNE
UPALCO
BONANZA
MEEKER
VAIL
WOLCOTT
SUMMIT
DILLON
BEAVER CREEK
INTERMOUNTAIN POWER PROJECT
MONA
CARBON
WELLINGTON
SHOSHONE
RIFLE
BASALT
MALTA
AUSTIN
MACHACEK
ELY
GONDER
PAVANT
HUNTINGTON CANYON
SIGURD
EMERY/HUNTER
MOAB
CAMEO
GRAND JUNCTION
COLLBRAN
ASPEN
MT. ELBERT
HOTCHKISS
MORROW POINT
BLUE MESA
PONCHA
CANON CITY
DELTA
MONTROSE
CURECANTI
GUNNISON
PINTO
NUCLA
LAKE CITY
BEAVER
PAROWAN
CEDAR CITY
HENRIEVILLE
SARGENT
SOUTHWEST
EMPIRE
LOST CANYON
BAYFIELD
DURANGO
PAGOSA SPRINGS
ST. GEORGE
WARNER VALLEY
NAVAJO
GLEN CANYON
POWELL
KAYENTA
SHIPROCK
SAN JUAN
FOUR CORNERS
FARMINGTON
GALLEGOS CANYON PROJECT 230-kV
CHAMA
LYBROOK
OJO
BISTI
STARLAKE
LAJARA
CUBA
HERNANDEZ
LOS ALAMOS
NORTON
A.E.C.
HARRY ALLEN
LAS VEGAS
REID GARDNER
BASIC
HOOVER
McCULLOUGH
ELDORADO
MEAD
TUBA CITY
MOENKOPI
CONOCO
CHURCH ROCK
YAH-TA HEY
UNITED NUCLEAR
FT. WINGATE
McKINLEY
PITT MIOWA
GALLUP
SMITH LAKE
AMBROSIA LAKE
JEMEZ
ALGODONES
SAN YSIDRO
RIO PUERCO
B.A 1979
WEST MESA
SUNSHINE
GAMERCO
ALLISON
KERMAC
TAYLOR
GULF
BLUEWATER
GRANTS TAP
PAGUATE
LAGUNA
GRANTS
PLAINS-ESCALANTE UNIT 1
PAJARITO
PERSON STA.
PRAGER STA.
COCONINO
FLAGSTAFF
CHOLLA
SELIGMAN
MOHAVE
DAVIS
HILLTOP
ROUND VALLEY
TENTATIVE CONVERSION TO 345-kV IN 1983

LEGEND

EXISTING	COMMITTED	TENTATIVE	NOMINAL VOLTAGE
━	─	╌	500 kV
━	─	╌	345 kV
━	─	╌	230 kV
━	─	╌	BELOW 230 kV
		╌	PL OR EHV ABOVE 500 kV

▓	ROUTES ASSOCIATED WITH BONANZA PLANT SITE
▨	ROUTES ASSOCIATED WITH RANGELY PLANT SITE
□	POWER PLANT
△	SUBSTATION

OWNERSHIP OF LINES

1. DESERET GENERATION & TRANSMISSION COOPERATIVE
5. PACIFIC POWER & LIGHT COMPANY
16. SIERRA PACIFIC POWER COMPANY
18. DEPT OF WATER & POWER CITY OF LOS ANGELES
19. SOUTHERN CALIFORNIA EDISON COMPANY
20. METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA
25. IDAHO POWER COMPANY
27. WESTERN AREA POWER ADMINISTRATION – LOWER MISSOURI AREA
28. UTAH POWER & LIGHT COMPANY
29. WESTERN AREA POWER ADMINISTRATION – LOWER COLORADO AREA
32. TUCSON GAS & ELECTRIC COMPANY
33. WESTERN AREA POWER ADMINISTRATION – UPPER COLORADO AREA
35. PUBLIC SERVICE COMPANY OF COLORADO
37. COLORADO UTE ELECTRIC ASSOCIATION AND MEMBERS
38. PLAINS ELECTRIC GENERATION & TRANSMISSION
40. PUBLIC SERVICE COMPANY OF NEW MEXICO
41. EL PASO ELECTRIC COMPANY
42. NEVADA POWER COMPANY
46. INTERMOUNTAIN POWER AGENCY

FIGURE 1-3

REGIONAL TRANSMISSION SYSTEM

CHAPTER 2
DESCRIPTION OF ALTERNATIVES

MINOR TEXT REVISIONS

In accordance with Council on Environmental Quality Regulations, this section contains reprinted pages from Chapter 2 of the Draft EIS that required only minor revisions. Those revisions are underlined on the affected pages.

CHAPTER 2
DESCRIPTION OF ALTERNATIVES

INTRODUCTION

The description of alternatives has been organized into major project component alternatives and general power project alternatives. Also included is the "No Action" alternative.

The major project component alternatives include power plant sites, raw material supply systems (i.e., coal supplies, coal transportation methods, water supplies and water transportation alternatives), and transmission system routing and configuration.

General power project alternatives include alternative methods of generating electrical power, alternate energy sources, different power plant designs, power purchase, and energy conservation measures.

Deseret has applied to the Bureau of Land Management (BLM) for (1) purchase of land for one of two plant sites, Bonanza or Rangely, with Bonanza as the proposed site; and (2) rights-of-way for raw material supply and transmission systems. The alternative plant sites are presented first and the remaining alternatives are discussed in relation to each plant site. Where facilities would be the same for both sites, the description is included in one alternative and referred to in the other.

Two scenarios on work force projections are presented. The first is the required work force for one unit with the Deserado Mine. The second is two units with the Deserado Mine assuming construction of unit 2 beginning 18 months after construction commences on unit 1. The latter scenario would be the maximum number of workers that would be employed at one time and the worst case analysis.

Unless otherwise indicated, the sources of tabular information in this report were compiled and verified by BLM from data provided by Deseret, Western Fuels Utah, Inc., or their consultants.

THE APPLICANT-PROPOSED ACTION

Deseret Generation and Transmission Cooperative (Deseret) has proposed to construct and operate a coal-fired generating station, consisting of two 400-megawatt (MW) units. Estimated power plant life is approximately 35 years. Figure 2-1 is a sketch of the proposed generating station and plant site facilities. About 10 percent (40 MW) of each unit's capacity would be used to power the station's electrical systems. Each unit would have a net power output of approximately 360 MW. The first unit is scheduled to go into commercial operation in December 1984. Information contained in the revised Power Requirements Study (PRS) shows that construction of unit 2 may begin in 1983.

Deseret's proposed location is the Bonanza site approximately 7 miles northwest of Bonanza, Utah in Uintah County.

Deseret's proposed course of action would be to pipe water approximately 19 miles from a collector-well system located beside the Green River (about 2.5 miles upstream from Walker Hollow) to the Bonanza site. This water would be taken from a 30-cubic-feet-per-second (cfs) water right already owned by Deseret.

station would be placed on the same towers as the 345-kV line to Mona. If unit 2 were constructed, a second 345-kV line would be built from the plant site to the UP&L Ben Lomond substation near Ogden, Utah or to the oil shale fields in Utah and Colorado. The actual destination would depend upon power demands at that time.

The proposed action is divided into three sections: (1) the initial action proposed by the applicant; (2) mitigation measures proposed by the applicant; and (3) measures required of the applicant by Federal agencies.

ALTERNATIVE PLANT SITES AND RAW MATERIAL SUPPLY SYSTEMS

The locations of the proposed and alternative power plant sites and raw material supply systems are shown in figures 2-2 and 2-3. The acreage requirements for all plant site and raw material supply alternatives are given in table 2-1. Deseret proposes to purchase the plant site from the BLM.

PLANT SITE ALTERNATIVES

The Moon Lake power plant project (Moon Lake project) began unofficially in 1958, when the Moon Lake Electric Association (MLEA) began field investigations of the general area around Rangely, Colorado to determine the economic feasibility of building a coal-fired steam-electric generating plant.

In August 1977, MLEA identified 12 potential sites in Uintah County, Utah (figure 2-4). The Utah Interagency Task Force on Power Plant Siting assisted MLEA with their attempt to select an acceptable power plant site in Utah and recommended that four sites receive additional study. The four Utah sites and the Colorado site were all considered viable.

The Bonanza site in Utah was selected as the applicant-proposed plant site because of recommendations by the Utah State Siting Committee and its proximity to the Green River which could be used as a water source. The Rangely site in Colorado was selected as an alternative site because of its proximity to the coal source at the Deserado Mine. Deseret has applied to BLM for rights-of-way for both sites.

APPLICANT-PROPOSED BONANZA PLANT SITE

Bonanza Site Location and Access

The Bonanza site covers about 1,840 acres of BLM-administered public and State lands. Figures 2-2 and 2-3 show the location of the plant site which is 23 miles southeast of Vernal, Utah.

The site is presently accessible by dirt roads from the north and south. A road extending southeast from U.S. Highway 40 at Vernal to Utah State Highway 45 at Bonanza, will be upgraded by Uintah County in 1981. The Utah Department of Transportation is aiding the county in applications for Federal funds and in compliance with Federal rules and regulations. Three miles of additional paved road would be needed for the Moon Lake project and would require a 100-foot-wide right-of-way (36 acres) across BLM-administered public lands.

The distance from Vernal to the proposed Bonanza plant site would be about 38 miles via U.S. Highway 40 and existing county roads. The distance from Rangely to the Bonanza plant site would be approximately 39.5 miles via Colorado State Highway 64 and Utah State Highway 45 and connecting county roads.

Multi-axled transport trailers would be used so that weight per tire would be similar to or less than weight per tire associated with standard 5-axled semi-truck trailers. The average speed of the moving equipment would be 3 to 5 miles per hour. No road improvements would be required but, of 16 bridges along the route, 5 would be shored or upgraded before crossing, and 11 would be crossed by jumper bridges. Shoring would involve the application of steel girders or other support structures. A 210-foot-long bridge across the White River near Rangely, Colorado would be shored by installing concrete footings and pilings while diverting water from one-half of the river at a time.

Jumper bridges would be carried by truck and placed over bridges that are 50 feet or less in length. Jumper bridges carry the entire weight of the load and can be positioned and removed within a few minutes.

Bonanza Site Facilities and Layout

Facilities and layout of the plant site are shown in figure 2-6. The coal storage areas would hold about 667,000 tons of coal and allow both units to operate at 80-percent capacity for 90 days without coal delivery.

Each of the two 400-MW turbine-generators would be driven by steam produced by coal-fired boilers. Each boiler, at maximum capacity, would burn 193 tons of pulverized coal per hour. The boiler unit would be designed to burn coal with the characteristics shown in table 2-2.

Number 2 fuel oil or coal may be used for boiler start-up and to stabilize low-load flame in the boiler's burners. If fuel oil were used, it would be stored in two 750,000-gallon tanks. Both tanks would be surrounded by a dike to contain potential spills. Between 500 and 600 thousand gallons of fuel oil would be required for start-up of unit 1. Total maximum consumption of fuel oil over the life of the project is estimated at about 24 million gallons. Between 70 and 75 10,000-gallon truckloads of fuel oil per year would be required.

The design of the fuel oil unloading pump station would include provisions for containing any leaks or spills. All areas within the plant site that may be subject to oil leaks or spills would incorporate control measures that are in compliance with the requirements for Spill Prevention Control and Countermeasure Plans as contained in 40 CFR 112.3.

Four mechanical draft wet cooling towers would extract heat from the plant water circulation system. Each generating unit would be served by two cooling towers. The maximum water loss due to cooling for two units would be 14,780 gallons per minute (gal/min). Overall, maximum water loss for the project including evaporation, seepage, and process losses would be 17,470 acre-feet per year.

Bonanza Site Emission Control

Centralized control and monitoring systems would be provided to optimize operation and provide monitoring data on plant emissions.

A fabric-filter baghouse would control particulate matter. The baghouse would remove approximately 99.6 percent of the fly ash.

The sulfur dioxide (SO_2) removal system would consist of a wet limestone scrubber capable of meeting all applicable Federal, State, and local requirements.

Water

Up to 17,470 acre-feet per year (11,000 gal/min) would be withdrawn from the Green River for use at the generating station. Figure 2-7 is a diagram of the water budget.

The applicant-proposed source of water for the Bonanza site is a 30 cfs (21,720 acre-feet per year) water right on the Green River. Alternative water sources and pipeline routes are discussed in following sections under those headings. A water storage reservoir with a capacity of 475 acre-feet would be located on the plant site.

Construction water for the first unit at the Bonanza site would be taken over a 4-year period from the Green River.

Limestone

About 1.93 million tons of high quality limestone (92 to 97 percent $CaCO_3$) would be used over the 35-year life of the Moon Lake project for removing SO_2 from the flue gases. Limestone would be obtained from one of four possible sources: LeGrand Johnson near Logan, Utah; Kiegley Quarry near Payson, Utah; Marblehead Lime near Wendover, Utah; or Continental Lime near Black Rock, Utah. Assuming 23 tons per truck, this would require about 46 truckloads per week on the highways between the supplier and the plant site.

Borrow Materials

Borrow material (sand, gravel, and fill dirt) needs are projected to be about 728,800 cubic yards which would be taken from ten separate sites with a total area of about 143 acres. Three of the borrow areas are within or adjacent to the Bonanza site boundaries and seven are along the Bonanza to Green River water supply pipeline route (figure 2-8). The seven areas outside the plant site boundaries total 127.2 acres.

RANGELY ALTERNATIVE SITE

Rangely Site Location and Access

Figures 2-2 and 2-3 show the proposed location of the Rangely site, 10 miles northeast of Rangely. The site would occupy 2,202 acres of public lands administered by BLM.

The Rangely site is located between U.S. Highway 40 and Colorado State Highway 64. Both highways are less than 5 miles from the site, and graveled roads lead to the site from both highways. An existing bridge on the Staley-Gordon Mine road would be upgraded. A 1-mile section of the Staley-Gordon Mine road immediately north of the White River would be relocated about 0.25 mile to the east. Access road locations are shown in figures 2-2 and 2-3. The distance from Rangely to the Rangely plant site via Colorado State Highway 64 and the Staley-Gordon Mine road would be approximately 14 miles. The distance from Vernal via U.S. Highway 50 and the Staley-Gordon Mine road would be approximately 54 miles.

Heavy equipment would be delivered to the plant site from a railhead at Mack, Colorado via U.S. Highway 6 and 50, Colorado Highways 64 and 139 and the Staley Gordon Mine road (see figure 2-5). No road improvements would be required but of 14 bridges along the route, 3 would be shored or upgraded before crossing and 11 would be crossed by jumper bridges.

Rangely Site Facilities, Layout, and Raw Material Needs

The Rangely alternative site's, facilities, structures, capacities, raw material requirements, design coal characteristics, etc., would be essentially the same as those of the proposed Bonanza site. The layout would be as shown in figure 2-9. The limestone source would also be as described for the Bonanza site, but borrow material needs would be different. Borrow material (sand, gravel, and fill dirt) needs are projected to be up to 2,230,000 cubic yards which would be taken from two separate sites with a total area of about 370 acres. Both of the borrow areas are contained within the Rangely site boundaries (figure 2-8).

The applicant-preferred system for coal transport to the Rangely site from the Deserado Mine would be a 4-mile-long conveyor. This conveyor and other alternatives are described in the Coal Transportation Alternatives section.

Water for the Rangely site would be piped from the Green River in Utah or the White River in Colorado as discussed in the Water Supply Alternatives section.

COAL SUPPLY ALTERNATIVES

INTRODUCTION

The applicant-proposed coal supply for either the Bonanza or Rangely sites would be the development of a new underground coal mine (Deserado Mine) 7 miles northeast of Rangely (figure 2-2). The mine would include two existing Federal lease areas and three preference right lease application (PRLA) areas, all owned by Western Fuels (location shown in figure 2-10). The leases and PRLA areas are proposed as a Federal Logical Mining Unit.

All mining associated with the Deserado Mine would be done in the Williams Fork geologic formation. Nine coal seams traceable throughout all or part of the coal lease areas have been identified by Western Fuels through exploration drilling. These nine seams occur in a coal-bearing zone that is generally 200- to 300-feet thick and have been labeled A through H and J in ascending order. Of these, only B, B/C, and D are considered minable. Figure 2-11 shows typical cross sections of the coal seams which are 100 to over 1,000 feet below the land surface in the mine area. The estimated recoverable and washed coal reserves of the minable seams are summarized in table 2-3.

The clean coal reserves from the various coal seams in the Deserado Mine area as estimated by Western Fuels are 55,299,000 tons. This is about 44 percent of the estimated in-place tonnage and 80 percent of the recoverable reserves. The 55,299,000 tons of recoverable washed coal represent about 59 percent of the two-unit coal requirement or a 20-year supply for the two-unit power plant (assuming an 18-month delay between completion of units 1 and 2).

After the 20-year period (year 2006 assuming 1986 completion date of unit 2), additional leasing or open market buying would be required. Additional coal is available in Federal coal exploration areas contiguous to the northern boundary of the Western Fuels coal lease and PRLA areas. Western Fuels estimates that there is sufficient additional coal for the life of the project. Under the current Federal coal management regulations, Deseret would be required to participate in competitive leasing for the exploration lands and may or may not be able to secure additional coal for expansion of the Deserado Mine. In addition, BLM has not determined whether or not the coal exploration areas are suitable for mining. An unsuitability report on these areas will be done after lease applications are filed.

DEVELOPMENT OF THE DESERADO MINE

Deserado Mine Surface Facilities

The major areas with surface facilities would be the portal, ventilation entry, coal storage, railroad loadout, and refuse disposal areas. The portal facilities, including a coal washing plant and surface conveyors, are illustrated in figure 2-12. The 100-acre portal area would have a "D" portal entry (entry into the D coal seam) and a "B" portal entry. These surface facilities would be located in Scullion Gulch in a two-bench configureation with fill being placed in the gulch. The existing flow through the gulch would be routed via a culvert under the surface facilities. Runoff from the disturbed areas would be routed through sedimentation ponds, while runoff from undisturbed areas would be diverted around the facilities. The ventilation entry would be off of the portal area (figure 2-13) at the old Staley-Gordon Mine portal.

The landfill refuse disposal areas for the coal preparation plant would be located north of the portal area as shown in figure 2-13. The refuse disposal area would consist of up to 11 separate refuse piles which could cover up to 600 acres. About 450,000 tons of waste from the preparation plant would be transported to the disposal area each year for unit 1. The operation of two units would increase the rate waste is added to the disposal area. An evaporation pond would be placed in each drainage below the landfill areas. The water quality in each pond would be monitored and, if found to be toxic, the ponds would be fenced. These ponds would be lined with an impermeable liner depending upon regulatory determination. A detail of the refuse disposal areas is shown in figure 2-14.

The discussion on coal transportation alternatives describes how coal would be transported from the mine to the power plant. Also, see Standard Measures section for additional details.

Deserado Mine Utilities

Electric power to the mine would be provided by MLEA. Construction power would be supplied by an existing 12.5-kV line that currently serves the old Staley-Gordon Mine. A temporary 12.5-kV line would be built along the Staley-Gordon Mine road to reach the portal area.

If the mine were developed in conjunction with the Bonanza site, permanent power would be supplied to the mine by tapping an existing 138-kV line and constructing a 3.4 mile 138-kV line across the White River and west to a substation located on the portal area. If developed in conjunction with the Rangely site, a 138-kV line would be routed from the plant site along the refuse haul road to the portal area (see figure 2-13).

Water for the Deserado Mine would be obtained from the White River through four small-diameter alluvial wells drilled adjacent to the White River. With the mine operating to supply coal for one unit at the power plant, up to 152.4 acre-feet of water per year would be removed (304.8 acre-feet per year maximum for 2 units) from the river system through these alluvial wells and piped to the portal area through a 12-inch diameter water pipeline (figure 2-13). The water budget for a one-unit power plant supply is shown in figure 2-15. MLEA presently holds a consumptive water right for 4,344 acre-feet (6 cfs) per year on the White River in Colorado. The point of diversion for this right is presently along the White River immediately west of the Town of Rangely and a change in point of diversion would be required.

A mechanical sewage treatment plant would be constructed at the portal area. The effluent from the plant, approximately 8,000 gal/day, would be pumped to a settling pond. Water from this pond would be used for fire or dust control or as make-up water for the coal preparation plant. This would be a zero discharge operation.

Deserado Mine Access Roads

Access to the Deserado Mine area is from U.S. Highway 40 on the north and Colorado State Highway 64 on the south. The Staley-Gordon Mine road, which is maintained by Rio Blanco County, connects the two highways. Unimproved roads leading from the Staley-Gordon Mine road presently provide access to all portions of the Deserado Mine.

Access to the portal area for employees would be provided by the Staley-Gordon Mine road north from Colorado Highway 64. Heavy equipment for the mine would be transported south on the Staley-Gordon Mine road from Highway 40.

A 58-foot-wide graveled refuse haul road, about 6 miles long, would be required (figure 2-13). Approximately 3 miles of Rio Blanco County Road 78 would be incorporated into the haul road. The heavy haul units would travel in an opposite pattern than the normal right-hand traffic flow pattern. It would be used by 35-ton dump trucks to transport refuse material to the refuse disposal site.

Deserado Mine Surface Coal Handling Operations

The recoverable coal would be transported out of the mine on conveyor belts. A series of conveyor belts would then be used to transport coal through the various storage and preparation facilities.

The coal wash plant would produce approximately 450,000 tons per year of coal processing waste. At the refuse disposal area it would be spread in approximately 24-inch-thick layers and compacted. This layering process would continue until the maximum fill height was achieved (40 to 50 feet maximum, average thickness 20 to 25 feet).

The landfill operation would proceed by stripping and stockpiling the topsoil; then the additional fill material would be stripped and stockpiled. The fill material and topsoil would be replaced once the maximum fill depth was reached to achieve a 4-foot cover over the coal waste, and the area would be revegetated according to a reclamation plan drawn up in conjunction with the Office of Surface Mining (OSM) and BLM.

Deserado Mine Underground Mining Operation

A combination of room-and-pillar and longwall mining would be used. A mine plan and sequence are illustrated in figures 2-16 and 2-17. Initial coal production would occur in the third quarter of 1983, and 126,000 tons of clean coal would be trucked to the plant site during a 3-month period of 1983. Based on 23-ton trucks and a 5-day work week, about 91 truckloads per day would be shipped to the plant site. The route and method of hauling would be as described in the on-highway truck haul alternative in the Coal Transportation section. This movement of coal would be required regardless of the plant site or long-term method of coal transport selected. In 1985, the capacity for total annual production of clean coal would be about 1,428,000 tons which would exceed the anticipated need for 1,350,000 tons at the one-unit power plant. This could be increased to 2.7 million tons per year by 1987, should unit 2 be completed at that time.

Coal would be transported from the coal preparation facilities, located at the mine portal area, via a 3.5-mile-long covered overland conveyor to the 256-acre coal storage and loadout area (see figure 2-21). Only 2.8 miles of the conveyor would be outside of the portal, coal storage, and loadout area boundaries. The clean coal would be stored in a 40,000-ton storage barn. Railcar loading facilities, railroad loop, office and maintenance facilities would be located at the railroad loadout area. A 4-inch buried water pipeline would parallel the conveyor. A small mechanical sewage treatment plant with about 1,000 gallons per day effluent would be located on the coal storage and loadout area. Water would be pumped to an evaporation pond and used for dust suppression.

The clean coal would be weighed, sampled, and loaded on railcars for transport to the Bonanza site.

The unloading track loop would be located at the Bonanza site. From the unloading facility, the coal would be moved on the plant site by conveyor to either live or dead storage facilities. A main line, approximately 35 miles in length, would connect the loading and unloading facilities (see figures 2-2 and 2-3).

The railroad would require between 8,000,000 and 9,000,000 cubic yards of cut, fill, and borrow material. The source of the borrow material has not been identified, but could come from commercial pits in Uintah County, Utah. At highway crossings, the highways would be rebuilt to form a grade separation over the railroad. All other road crossings would be equipped with warning signs and/or lights. Bridge structures and corregated metal pipes would be used to cross drainages.

For the initial operation of one unit at the power plant, the train would have two locomotives and 31 100-ton bottom discharge cars making two trips per day, 5 days per week for 220 days per year. The train would deliver 6,200 tons of coal per day for a total of 1,364,000 tons per year. To make one trip, it is estimated that the train would require an elapsed time of approximately 4 hours.

With two units at the power plant site, the train is estimated to have four locomotives and 52 100-ton bottom discharge cars making two trips per day, 6 days per week for a total of 264 days per year. It is estimated that this train would operate at a speed of between 20 and 30 miles per hour which would require about 6 hours per round trip for a total daily operation of 12 hours. The estimated length of the train is 3,100 feet. The train would transport 10,500 tons of coal per day for a total of 2,772,000 tons per year.

OVERLAND CONVEYOR COAL TRANSPORT ALTERNATIVE

Overland Conveyor From Deserado Mine to Bonanza Site

Figure 2-22 is a generalized drawing of a covered overland conveyor. Only the top of the conveyor would be covered and it would be open under the belt guides. The height of the supportive structures would vary between 8 to 150 (average 8-15) feet according to the terrain. A minimum of 2.5 feet of clearance would be maintained between the conveyor and the ground. Figure 2-23 is a photograph of a conveyor of similar design under construction at a power plant in central Utah.

The route of the overland conveyor would be as shown in figure 2-2. A conceptual drawing of the conveyor system is shown in figure 2-24.

At highway crossings, the conveyor would be elevated 16 feet above the pavement. A catch pan would be placed under the belt as a safety measure at highway crossings. A 180° twist of the belt would be made at the ends of each

A maximum of 21,720 acre-feet of water annually (30 cfs) could be taken from the Green River during the project's life. A projected water use schedule is provided in table 2-4.

The authorized point of diversion for Deseret's 30 cfs right is below the confluence of the White and Green Rivers. A change in point of diversion would be required prior to construction of the Walker Hollow collector system.

The pumps at the collector wells and along the pipeline would be driven by electric motors. A 19-mile-long, 12.5-kV distribution line strung on single wood pole structures would be used to supply power to the pump motors. This line would be located within the water pipeline corridors.

As an alternative to withdrawing their 30 cfs Utah water right from the Green River and depleting the river flow, Deseret could purchase water directly out of Flaming Gorge Reservoir from the Water and Power Resources Service. The water from Flaming Gorge could be released into the Green River and then pumped from Walker Hollow to the plant site. The Water and Power Resources Service has given initial indication that water is available for purchase and Deseret has filed an application (July 11, 1980) for purchase of up to 30 cfs.

USE OF GREEN RIVER WATER FOR THE RANGELY SITE

One alternative water source for a power plant at the Rangely site is the Green River in Utah. It would be technically possible for Deseret to utilize Green River water (from its existing 30 cfs water right or from Flaming Gorge storage) to supply the power plant whether the plant site is located at Bonanza or Rangely. It is uncertain, however, if legal and state water policy would allow transfer of water from Utah to Colorado for this project. This was noted in the discussion of unresolved issues in the Summary (also see Appendix 2).

The water supply system used here would be a collector well system as described for the Bonanza site proposed water source.

USE OF WHITE RIVER WATER FOR THE BONANZA OR RANGELY SITES

The White River has been identified by Deseret as an alternative source of water for the Bonanza site and as the preferred source of water for the Rangely site. Due to low flow during the late summer and winter seasons, a reservoir may have to be constructed on the White River to ensure adequate supplies of water for a power plant at either site.

A reservoir has not been proposed by Deseret, but one is proposed by the State of Utah and two others by Water Users Association No. 1 of the Colorado River Water Conservation District (CRWCD). A water intake structure would be built on the bank of the reservoir (figure 2-27).

Use of Utah White River Reservoir for the Bonanza Site

The alternate source of water for a power plant at the Bonanza site is the Utah White River Reservoir proposed by the State of Utah. The reservoir would be located about 5 miles southwest of Bonanza, Utah. Preliminary designs for the reservoir have been completed and funding has been approved by the Utah State Legislature. The BLM has prepared a Draft EIS on the White River Reservoir project. The Final is scheduled for completion in the spring of 1982, and reservoir construction could be completed by the fall of 1984. The planned storage capacity is 105,000 acre-feet and annual yield is esti-

Presently an average of 500,000 acre-feet of water annually flows from the White River into the Green River (Bingham Engineering, 1979). Estimates of water availability for the Moon Lake project are dependent on assumptions of future development of existing conditional water rights and required water releases by the States of Utah and Colorado. (See the unresolved issues section of the Summary.)

Using Western Engineers, Inc. (1979a) assumptions on the development of existing water rights and a minimum streamflow of 95 cfs below the Utah White River Reservoir diversions, all of the Utah White River Reservoir's estimated project demands, except hydropower generation, would have been met had the project been in operation during 1977, the most severe drought year on record (Hansen, 1980a). The Utah Division of Water Resources indicated that hydropower generation would be curtailed during any serious drought to provide needed water for the Moon Lake project or other critical uses.

Use of Rangely Reservoir Project Water for the Rangely Site

The Water User's Association No. 1 of the CRWCD is proposing the Rangely Reservoir project. This project involves construction of a reservoir on the White River either at the Taylor Draw site about 7 miles east of Rangely (figures 2-3 and 2-28) or at the Wolf Creek site 18 miles northeast of Rangely (see figure 2-29), or at both sites if the Taylor Draw Reservoir were built first.

Use of Taylor Draw Reservoir for the Rangely Site

A feasibility and preliminary engineering study of the Taylor Draw Reservoir project has been completed. In August 1980, a $13 million bond to finance construction of the reservoir was approved and applications for permits and use of public lands were subsequently filed with the U.S. Army Corps of Engineers and the BLM. Commitments have been made for preparation of engineering plans (Hansen, 1980b). The impacts of construction and operation of this project will be studied in a separate report as required by the National Environmental Policy Act (NEPA). A preliminary environmental assessment has been prepared for Western Engineers, Inc. by Fleming (1979).

The Taylor Draw Reservoir would have a capacity of 13,800 acre-feet with an annual yield (including allocation for upstream senior conditional water rights) of about 41,462 acre-feet. According to Western Engineers, Inc. (1979), the minimum monthly yield during the drought period of 1977-78 would have been 1,770 acre-feet per month. In most years, the White River has an adequate water supply, but during low flow periods, no water (flow) will be available in the river without hold-over reservoir storage.

Sediment deposition would rapidly reduce the storage capacity of the Taylor Draw Reservoir. Western Engineers, Inc. (1979a) estimated that approximately 320 acre-feet of sediment per year would be deposited in the Taylor Draw Reservoir. Western Engineers, Inc. (1979a) used three flow ranges to make this prediction. Hansen (1980a) projected the annual sedimentation rate at 480 acre-feet based on a refinement of Western Engineers, Inc. method with 20 flow ranges. If it is assumed that an average yield between the two estimates is reasonable, the total sediment transported over a 30-year period would be 12,000 acre-feet. Of this amount, a significant portion would be deposited as a delta upstream from the reservoir. Some additional sediment would be flushed through the reservoir through low level outlet gates. During periods when sediment transport is greatest, the reservoir would be full, thus the delta formation would proceed primarily from the high water line.

30 years, storage could be reduced to a range of 5,000 to 10,000 acre-feet if no additional storage facilities were constructed upstream. The reservoir could provide a water supply for a one-unit Moon Lake power plant. On a long-term basis, the Taylor Draw Reservoir could be used for a two-unit power plant as a holding pond for water that Deseret may be able to purchase from holders of existing conditional water rights on the White River.

Deseret holds a 6-cfs consumptive White River water right (Application No. W-297) with a priority date of 1947. The Town of Rangely in a letter dated June 4, 1980, has offered to sell up to 16 cfs to Deseret on an as-needed basis from Rangely's 30.95 cfs water right (Application No. W-3331). About 2.6 cfs of this water would have a priority date of 1947 and the remainder a priority date of 1957. The Rangely water right is a final adjudicated right of 30.95 cfs of which 3-4 cfs is being used by the town. Even with these early priority water rights, Deseret would be about 2,200 acre-feet short of their maximum water demand (17,470 for the generating station and 152.4 for mining operation) and could have to purchase additional water during low flow periods. Additional water may be available from the Yellow Jacket Water Conservancy District (YJWCD) or any other willing seller including holders of agricultural water rights. The priority date of the rights would be transferred with the sale.

The YJWCD in a June 2 letter to Rio Blanco County Commissioners states that the conservancy district is ready to take action to assure an adequate, reliable, and early priority water supply to Deseret (YJWCD, 1980). The terms of the agreement or the amount of water available have not been resolved.

In the upper White River basin, purchase of existing early priority agricultural water rights by oil shale or coal gasification companies has already occurred. Approximately 37,000 acre-feet of water is consumptively used on an average annual basis by irrigated agriculture in the upper White River basin (Colorado Dept. of Natural Resources, 1979). Since agricultural water rights are about one half consumptive, Deseret would have to purchase the right to divert water in amounts about twice their consumptive needs. It is assumed that the purchase of agricultural water rights by Deseret would be to supplement water demand during low flow periods. Further, this water would only be used on an "as-needed basis" and irrigated cropland would not be permitted to lie fallow for a period longer than the duration of the low flow.

Mitigation for loss of damage to crops during this period would have to be developed between the private landowners and Deseret.

Water would be pumped from a standard intake structure at the eastern end of the Taylor Draw Reservoir and transported to the Rangely site via a 5-mile pipeline. The pipeline would parallel the Staley-Gordon Mine road for approximately 2 miles where it would then turn northeastward and follow the overland coal-conveyor corridor to the plant site.

Since electric motor driven pumps would be used to pump the water to the Rangely plant site, a 12.5-kV distribution line similar to the line described for the Green River alternative would be placed along the pipeline corridor.

Use of Wolf Creek Reservoir for the Rangely Site

A schedule has not been developed for the necessary permitting, financing, or construction of the Wolf Creek Reservoir. No applications have been filed. Water Users Association No. 1 has proposed to construct Taylor Draw Reservoir first, and then, when funds are available, to construct Wolf Creek Reservoir. If oil shale development accelerates or if water were needed for a large industrial user such as the Moon Lake project, financing might become additional 6,000 acre-feet of water for irrigation. Because Wolf Creek would be a much larger reservoir than Taylor Draw, a larger annual carry-over of water would normally be available. Increased certainty of delivery would be present and available sediment storage space would be much more than at Taylor Draw. The location of the dam and high water line for the Wolf Creek Reservoir are shown in figure 2-29. Detailed data on the location of borrow material areas and design of the dam are not available. This alternative is presented on the assumption that, should the Rangely site with the Wolf Creek Reservoir water source be selected, additional design and environmental work would be required.

As with the Taylor Draw Reservoir, Deseret could add reliability to this water source by the purchase of additional early priority water rights from holders of conditional water rights on the White River.

GROUND WATER ALTERNATIVE

Bonanza Site

Because of poor quality and low volume, ground water at the Bonanza site is not considered as a viable alternative for use as condenser cooling water. The ground water situation near the Bonanza site is discussed in Chapter 3, Water Resources.

Rangely Site

The amount of ground water that could be physically recoverable in the White River drainage basin is unknown and, of that, only a fraction is apt to be economically recoverable (Colorado Dept. of Natural Resources, 1979).

The water quality of bedrock aquifers in the White River basin is generally poor and water would have to be processed for salt removal before being used at the generating station.

Discharge studies of 27 springs in the Piceance Creek (tributary to the White River) drainage basin indicate that about 80 percent of the average annual yield of that stream system comes from springs (Colorado Dept. of Natural Resources, 1979). Colorado law requires one who uses or disrupts a ground water system that is tributary to or discharges to a natural surface stream to ensure that the rights of senior surface water appropriations are not impaired. In this event, Deseret would still have to purchase high priority water rights in order to be assured of a reliable water source. Since this alternative would not solve the water rights problems of a surface water source and the ground water is of poor quality, the ground water source is not considered as a viable water source alternative for the Rangely site.

WORK FORCE PROJECTIONS FOR POWER PLANT AND RAW MATERIALS SUPPLY SYSTEMS

The employment figures for construction and operation of the power plant apply to either the Bonanza or Rangely site. The figures for the mine and railroad coal supply system apply to the applicant-proposed Bonanza site. Employment figures represent estimates and are subject to unpredictable variations.

RANGELY SITE

Unit 1 Transmission Line Routes

Combined 345- and 138-kV Lines

The alternatives to reach Tank Hollow from the Rangely site are the same as listed for the Bonanza site. A northern corridor from the Rangely site ties into the Upalco-Fruitland and Upalco-Sowers alternatives at Stirrup Junction; a southern corridor from the Rangely site ties into the Castle Peak-Sowers and Castle Peak-Fruitland alternatives at Coyote Wash.

The unit 1 138-kV line from the Rangely site to the Upalco substation would be placed on the same towers as the unit 1 345-kV line to the Mona substation. Its route is, therefore, dependent on the route selected for the unit 1 345-kV line. The unit 1 line to Upalco could be constructed as a double circuit 345-kV line with one circuit energized at 138-kV and the other at 345-kV.

The alternatives from Tank Hollow to the Mona substation would be the same as described for the Bonanza site unit 1 transmission system.

The applicant-proposed and alternative corridors are shown in figure 2-33. The lengths and acreage requirements of the routes are listed in Appendix 5, tables E through H.

138-kV Lines

Two 138-kV single circuit transmission lines, one to the Vernal substation and one to the southwest Rangely substation, would be required with unit 1. The alternative routes are shown in figure 2-33.

Unit 2 345-kV Line

Four alternative routes for the unit 2 345-kV line from the Rangely site to the Ben Lomond substation are shown in figure 2-34.

The alternatives to reach the Ben Lomond substation from the Rangely site are the same as listed for the Bonanza site. A northern corridor from the Rangely site ties into the Upalco-Fruitland and Upalco-Sowers alternatives at Stirrup Junction; a southern corridor from the Rangely site ties into the Castle Peak-Sowers and Castle Peak-Fruitland alternatives at Coyote Wash.

SYSTEM AND CORRIDOR COORDINATION ALTERNATIVES

UP&L INTERTIE, UNIT 1 345-kV LINE

This alternative would involve a wheeling (wholesale transportation of power by one company for another) contract and mutual transmission line construction agreement between Deseret and UP&L.

UP&L is planning to build the first phase of a "piggback" 345-kV double circuit line from the Hunter plant through Spanish Fork Canyon. The scheduled completion date for this line is 1983. Deseret could provide additional funding to UP&L or help construct double circuit towers for the Moon Lake unit 1 and Hunter 3 line along 24 miles of the line from Tucker (with the Sowers Canyon route) or 16 miles from Tank Hollow (with the Fruitland route) to the UP&L Spanish Fork substation (see figure 2-35). UP&L would then wheel power from the Spanish Fork substation to Deseret's customers west of the Wasatch Front.

TABLE 2-9

Transmission System Segments With Potential[a] for Tower Sharing

Segment Number	From	To	Total Length (mi.)	Potential Transmission Lines From Moon Lake Project[d]	Miles Parallel to Transmission Line	Number, Ownership, and Size of Transmission Line
2	Little Bonanza	Rangely substation	17.5	1-138 kV (Bonanza site). 1-double circuit 138- 345-kV (Rangely site).	17.5	1, MLEA, 69-kV.
4	Mellon Hill	Rangely substation	9.7	1-138-kV (Bonanza site).	8.0	1, MLEA, 69-kV. 1, Western Area Power Administration (WAPA) 138-kV.
8	Upalco	Arcadia	4.0	2-345-kV (either plant site, units 1 and 2).	4.0	1, MLEA, 138-kV. 2, UP&L, 138-kV.
9	Arcadia	Sinkdraw	22.5	2-345-kV (either plant site, units 1 and 2). (Either plant site units 1 and 2).	12.0 10.5	1, MLEA, 138-kV. 1, UP&L, 138-kV. 1 MLEA, 69-kV. 1, UP&L, 138-kV.
10	Sinkdraw	Fruitland	15.0	2-345-kV (Either plant site units 1 and 2.)	15.0	1, MLCA, 69-kV. 1, UP&L, 138-kV.
17	Arcadia	Sowers Canyon	12.5	2-345-kV (either plant site units 1 and 2).	12.5	1, UP&L, 138-kV.
19	Sowers Canyon	Tank Hollow	65.0	2-345-kV (either plant site, units 1 and 2).	30.0 8.0	1, UP&L, 138-kV. 2, UP&L, 345-kV[b]. 2, UP&L, 138-kV. 1, UP&L, 44-kV.
20	Tank Hollow	Thistle	8.2	2-345-kV (either plant site, units 1 and 2).	8.2	1, UP&L, 44-kV. 2, UP&L, 138-kV. 2, UP&L, 345-kV[b].
21	Thistle	Spanish Fork substation	7.5	2-345-kV (either plant site, units 1 and 2).	7.5	1, UP&L, 44-kV. 2, UP&L, 138-kV. 2, UP&L, 345-kV.
24	Mud Flat	Mona substation	25.8	2-345-kV (either plant site, units 1 and 2).	19.7	1, UP&L, 44-kV. 1, UP&L, 138-kV. 1, UP&L, 345-kV. 1, UP&L, 500-kV[c].
26	Rangely site	Red Wash	41.0	1 double circuit 345-kV. 2-138-kV.	25.0	1, WAPA, 138-kV.
28	Rangely site	Rangely substation	15.5	1 double circuit 345-kV. 2-138-kV.	14.0	1, MLEA, 138-kV.
30	Fruitland	Mountain Green	92.9	1-345-kV (either site, unit 2).	15.0 10.0	1, MLEA, 69-kV. 1, UP&L, 138-kV. 1, UP&L, 230-kV.
31	Mountain Green	Ben Lomond	24.0	(1-345-kV either site, unit 2.)	13.0 11.0	2, UP&L, 230-kV. 3, UP&L, 138-kV. 1, UP&L, 230-kV. 1, UP&L, 345-kV.
32	Deadman Bench	Red Wash	8.0	1-345-kV (Bonanza site, unit 2). 1-138-kV (Bonanza site, unit 1).	8.0	1, MLEA, 69-kV.
33	Red Wash	Asphalt Ridge	9.0	1-345-kV (either site, unit 2). 1-138-kV (either site, unit 1).	9.0	1, MLEA, 69-kV.
34	Asphalt Ridge	Vernal substation	4.3	1-138-kV (either site, unit 1).	4.3	1, MLEA, 69-kV.
35	Asphalt Ridge	Mountain Green (via Lone Tree).	160.7	1-345-kV (either site, unit 2).	13.0	1, UP&L, 230-kV.
36	Mona	Ben Lomond	113.7	1-345-kV (either site, unit 2).	113.7	1, UP&L, 345-kV. 2, UP&L, 230-kV. 1, UP&L, 138-kV.

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[a] Potential for tower sharing exists wherever a proposed transmission segment parallels an existing transmission line.

[b] 1-345-kV line planned for 1984.

[c] 1-500-kV line planned for 1987-88.

[d]

Structure Type	Area Occupied by Each Structure (ft²)	Structures Per Mile
Single-Circuit 138-kV Wood H-Frame	60	6.6
Single-Circuit 345-kV Wood H-Frame	75	6.6
Single-Circuit 345-kV Steel Lattice	900	4.4
Double-Circuit 345-kV Steel Lattice	1,089	4.4

Appendix 6 provides information on transmission system reliability in relation to tower sharing and double circuiting.

UNITS 1 AND 2 345-kV LINE DOUBLE CIRCUITING TO THE SPANISH FORK SUBSTATION

This alternative would be construction of double circuit towers for the unit 1 345-kV line from either plant site via any of the alternative corridors to the UP&L Spanish Fork substation and wheeling of power by UP&L to Deseret's customers west of the Wasatch Front. The unit 2 345-kV line would then be placed on the same towers as the unit 1 line and UP&L would again wheel power for Deseret. A 170-foot-wide right-of-way would be required for the double circuit 345-kV line, rather than two 150-foot-wide rights-of-way for two separate 345-kV lines.

UNITS 1 AND 2 345-kV LINE DOUBLE CIRCUITING TO THE MONA SUBSTATION

This alternative would be construction of double circuit towers for the unit 1 line from either plant site via any of the alternative corridors to the Mona substation. The unit 2 line would then be placed on the unit 1 double circuit towers to Mona. Two options could then be taken. UP&L could wheel for Deseret from the Mona substation or Deseret's unit 2 line could then be routed up the Wasatch Front to the Ben Lomond substation as shown in figure 2-33. Over the 35-year life of the project, wheeling could cost as much as $28,668,700 (1980 dollars). Construction of the 345-kV line from Mona to Ben Lomond would cost approximately $59,583,000.

UNITS 1 AND 2 345-kV SYSTEM: UP&L-DESERET COOPERATIVE WHEELING

UP&L has identified the potential need for two 500-kV transmission lines from the Carbon-Emery County area to the Wasatch Front and points further north. One of the 500-kV lines would parallel an existing 345-kV line across the Manti Top or cross through Eccles Canyon south of Scofield Reservoir to reach the Wasatch Front near Mona, Utah. A second UP&L 500-kV line projected for 1999 is proposed to be routed north along a corridor that runs east of the Wasatch Front to a point east of Logan, Utah. A second UP&L 500-kV line projected for 1999 would be routed north along a corridor that runs east of the Wasatch Front to a point east of Logan, Utah. In order to avoid the need for an independent 345-kV line for the Hunter plant, two 345-kV lines for the Moon Lake plant, and at least one future 500-kV transmission line for UP&L operation, Deseret and UP&L could cooperatively construct a double circuit 500-kV line through Spanish Fork Canyon with capacity to handle the projected load of the four lines identified above. Construction of such a double circuit 500-kV line would cost about $589,200 per mile as opposed to an independent construction cost of $1,379,200 per mile for independent construction of the three 345-kV single circuit lines and each of the two single circuit 500-kV lines. Substations to convert voltages would increase the estimated costs of the 500-kV system.

JOINT AGREEMENT VIABILITY AND SYSTEM RELIABILITY

Although economic and environmental benefits can be gained from joint agreements such as system interties, tower sharing, and cooperative wheeling, the time frame for the development of such agreements is speculative and may problems can occur in the event of a forced outage. The Reliability constraints of this alternative are discussed in Appendix 6.

UNIT 1 AND 2 345-kV CORRIDOR SHARING BY DESERET AND THE ROCKY MOUNTAIN PIPELINE PROJECT

Four companies, Pacific Gas Transport, Northwest Pipeline Co., El Paso Gas, and Pacific Interstate Transmission Co., are proposing to build a 36-inch diameter buried natural gas pipeline from Kemmerer, Wyoming to Southern California. An EIS on this project is being prepared by BLM and the Federal Energy Regulatory Commission (FERC) and is scheduled for completion in April 1981 with construction scheduled for 1985. The proposed route for the pipeline would pass a few miles west of Strawberry Reservoir and would parallel Deseret's proposed transmission line from Strawberry Ridge to Nephi, Utah (figure 2-36). Two of the Moon Lake project unit 1 345-kV line alternative routes are in common corridors with the Rocky Mountain pipeline alternative routes. The Bonanza to Tank Hollow route via Upalco would be in the same corridor as the Rocky Mountain pipeline for about 10 miles (mileposts 20 to 30 of segment 11). Deseret and the four companies mentioned above have reached an agreement that corridor sharing as discussed in this paragraph is technically feasible. The Tank Hollow to Mona alternative route via Dairy Fork would be in the same corridor as the Rocky Mountain pipeline for 36 miles (milepost 0 to 23 of segment 25 and milepost 0 to 13 of segment 24). This alternative would result in the impacts as discussed in Chapter 4 but would avoid the cumulative impacts of independent corridors for the two projects. During development of the Rocky Mountain Pipeline EIS, an alternative pipeline routing referred to as the Mill Ceek Route Variation was identified. It begins approximately 7 miles east of the Dairy Fork route, tying back into the Dairy Fork route at milepost 14. The variation could be used for corridor sharing beween the Rocky Mountain pipeline and Deseret's unit 1 345-kV line. Analysis of this corridor will be included in the Rocky Mountain Pipeline EIS scheduled for completion by BLM in July 1981. Analysis of this corridor will be included in the Rocky Mountain Pipeline Project Draft EIS scheduled for completion by BLM and FERC in April 1981.

EXCHANGE OF SERVICE AREAS AS AN ALTERNATIVE TO UNIT 2 345-kV TRANSMISSION LINE CONSTRUCTION

This alternative would consist of Deseret exchanging service areas with UP&L and the Western Area Power Administration so that Deseret would service the Uinta Basin, and power from the Flaming Gorge hydroelectric plant could be routed on existing lines into Wyoming and back to Ben Lomond through UP&L's Naughton plant system. The Western Area Power Administration (WAPA) acts as a marketing agent for the transmission and marketing of federally generated power. At this time, an exchange of service area is not possible since the Uinta Basin presently uses about 100 MW of power and the Moon Lake project unit 2 would deliver about 400 MW of power. Because of this large difference in power demands, a new east-to-west transmission line would be required to deliver the power to the load centers. In any event, there is presently not enough line capacity in the Flaming Gorge system to deliver an additional 300 MW of power to the Wasatch Front (WAPA, 1980).

The power from these projects is either totally committed or cannot be produced within the time requirements of the Moon Lake project. Deseret has negotiated the purchase of 158 MW of the UP&L Hunter Unit 2, of which 100 MW is to be available for the members of Deseret. Participation in Hunter 2 will not, however, supply all of the projected power needs of the Deseret members and, therefore, such participation is not an alternative to the proposed Moon Lake project.

NO ACTION ALTERNATIVE

The "No Action" alternative would involve the denial by Federal agencies of rights-of-way and other appropriate permits necessary for the construction and operation of the Moon Lake project or cancellation of the proposed project by Deseret. Such a decision could result from Federal agencies finding that it is in the public interest to deny the use of public lands or refuse a loan guarantee commitment for this project.

If the proposed project is not implemented, the environmental impacts associated with activities of construction and operation would not occur. With the No Action Alternative, a continuation of current socioeconomic growth trends and resultant environmental impacts would still be expected in the Vernal-Rangely area.

The "No Action" alternative would, however, necessitate the development by Deseret of alternate methodologies to meet the short-term demand for energy in their respective service areas. Deseret would have to investigate the possibility of developing other power plants or alternative energy sources which they and REA have concluded, through their analysis, are needed to meet that demand. If demands were not met, revolving blackouts could occur (certain part of each service area would be without power for part of each day) which could be detrimental to the overall welfare of the customers affected.

Deseret has estimated that delay could result in an additional cost of about $30 million per year for the project due to inflation. This cost would be borne by Deseret owner/consumers. If Deseret were unable to complete its proposed generating unit for commercial operation by the March 1985 deadline, the cost to Deseret to purchase power from UP&L, assuming the power is available, could result in an immediate increase of 20 to 40 percent dependent upon the amount purchased.

Without the Moon Lake project, Deseret would be required to enter the spot market to satisfy their load requirements. The availability of spot open market purchases is questionable due to the power deficits in the general area and the demand by California utilities. Further, the cost associated with spot market power purchases could be prohibitive to Deseret's consumers. Depending on the time of year, the purchase price for day-to-day power purchases could range from 5 to 10 cents per kwh (1980 dollars). This represents a 100- to 300-percent increase in the cost of power.

COMBINATION OF POWER GENERATION ALTERNATIVES

A combination of different energy technologies, necessarily distributed over a large geographic area, was not considered a practicable alternative to a coal-fired power plant for the proposed Moon Lake project. A dispersed generating system consisting of a variety of technologies, some of which are not proven to be completely feasible at this time, would likely prove more difficult and costly to operate and manage than a central energy producing facility. A heterogeneous energy generating system with an associated transmission network would be more extensive, complex, and interconnected than that

STANDARD MEASURES

This section summarizes applicant-proposed and standard Federal agency measures which would minimize or eliminate adverse impacts to the human environment. These measures would be employed because of existing laws, court decisions, agency policy, or firm applicant commitment. Following each measure is a short evaluation of its effectiveness in reducing environmental impacts.

MEASURES PROPOSED BY APPLICANT

a. Coal dust would be controlled by covering conveyors and spraying the reserve coal storage piles with a surface crusting agent.

Coal dust suppression would be nearly complete.

b. Action would be taken, as necessary, to suppress any fugitive dust resulting from construction, ash handling, transportation, and disposal. Ash hauled to the disposal site would be covered with top soil and the site revegetated, as the fill progressed, as determined by the appropriate Federal official.

Fugitive dust suppression would be effective the majority of the time. The degree of effectiveness would vary with weather conditions and depend upon sophistication of suppression equipment and success of soil consolidation projects such as revegetation.

c. Material borrow areas would be restored to blend with adjacent terrain.

Topographically, this mitigation would be about 100-percent successful. However, there may be a long-term contrast in vegetation types.

d. Depending upon regulatory determination, the solid and liquid waste disposal areas would be lined with impermeable materials to protect all surface and ground water bodies from seepage. As presently planned, the recycle and evaporation pond linings would have a permeability of $1X10^{-6}$ cm/sec.

Ground water would be protected assuming the integrity of the impermeable layer was preserved.

e. Depending on regulatory determination, the sanitary treatment disposal area would be lined to prevent percolation to underlying soil formations.

Ground water would be protected assuming the integrity of the impermeable layer was preserved.

f. The carrying of firearms by employees while on the job or in company-owned vehicles, with the exception of security guards, would be prohibited. The carrying of firearms in vehicles or company-controlled properties would be prohibited.

This may reduce vandalism (e.g., shooting of signs and the opportunistic shooting of game and nongame animals).

g. Deseret would coordinate with all regional, county, and local officials in planning, scheduling, and implementing development and construction.

This would aid local governments in planning for project-related community impacts.

h. Appropriate road signs for public safety purposes would be provided during construction. Flagmen, barricades, and other safety measures would be provided to insure public safety.

These safety measures would help reduce the likelihood of traffic accidents.

i. Colors selected for structures would blend with the natural landscape as coordinated by the appropriate Federal official.

This would be effective in reducing the contrast of obtrusive structures. Even with design to complement form, line, color, and texture of the surroundings (e.g., painting structures natural and complementary colors), contrast with the landscape would, in certain instances, be high because of the inherent characteristics of the structures.

j. Mine drainage equipment would be designed to dewater the mine and minimize safety hazards to workers or equipment. The applicant would comply with all State and Federal discharge requirements.

Water at the mine, seepage, inflow, and outflow could be effectively controlled.

k. The reclamation plan for the Deserado Mine consists of three phases. The first phase would be initiated on all areas involved in initial construction activities not expected to receive further disturbance. This reclamation would be part of the original construction work. This would consist of removal and stockpiling of topsoil. The next phase, ongoing reclamation, would progress throughout the life of the mine. This would basically consist of reclaiming the refuse disposal area and maintaining field plots to aid in reclamation planning. The last phase, final reclamation, would include the removal of surface facilities and complete reclamation of disturbed areas. Reclamation activities would consist of grading the disturbed area to approximate original contours, stockpiling and replacing of topsoil, preparing seedbeds, seeding, fertilizing, mulching, and subsequent management.

Mine reclamation is expected to be successful insofar as erosion prevention and contour are concerned. The naturalness, original vegetation age class, and some of the native plant species would probably not be retrievable.

l. During the beginning of mine facility construction, sedimentation ponds would be constructed to control sediment in all areas of surface disturbance.

This should be greater than 75-percent successful in keeping sediment on site and preventing the sedimentation of drainages and the covering of vegetation.

m. Deseret would provide busing for workers from Vernal and Rangely to the plant site.

This should reduce traffic congestion, energy consumption, and accidents.

n. Deseret has identified several social and economic mitigating measures that they will or may support (see Appendix 11) of this Final EIS.

o. Deseret would comply with all State highway permits for transporting heavy haul power plant components.

Stipulations of the permit system would be effective in reduced traffic hazards resulting from slower than normal traffic flow.

MEASURES REQUIRED OF THE APPLICANT BY FEDERAL AGENCIES

Authority for Federal requirements for this project is granted under the following acts:

National Environmental Policy Act of 1969
Eagle Protection Act of 1969 as amended
Fish and Wildlife Coordination Act of 1958
Organic Administration Act of 1897, as amended
Reclamation Act of 1902
Preservation of American Antiquities Act of 1906
Wilderness Act of 1964
National Historic Preservation Act of 1966, as amended
Executive Order 11593 of 1971 (Protection and Enhancement of the Cultural Environment)
Federal Land Policy and Management Act of 1976
The Clean Air Act, as amended 1977
The Federal Clean Water Act of 1977
Endangered Species Act, as amended 1978
Executive Order 12088--Federal Compliance with Pollution Control Standards
Executive Order 11990--Protection of Wetlands
Executive Order 11988--Floodplains Management
National Wildlife Refuge Systems Administration Act of 1966
Federal Air Regulations, Part 77
Federal Aviation Act of 1958
Occupational Safety and Health Act of 1970
Surface Mining Control and Reclamation Act of 1977

Federal Noxious Weed Act, 1974
Federal Coal Leasing Amendment Act of 1976

These measures are general guidelines for mitigation and may be altered by the appropriate Federal official to meet site specific needs on Federal lands. Deseret will, when restoring or rehabilitating areas disturbed by the construction of the transmission lines, pipelines, and associated access roads across private lands, use the same reclamation measures as required by land managers of adjacent Federal lands or reclamation measures as requested or required by the private landowner (Deseret, 1980).

a. A construction operating plan or similar document would be prepared covering the construction of all project linear facilities. Under authority of Section 504 of FLPMA the applicant would be required to provide funding to the appropriate Federal agencies for the purpose of financing one or more specialists and their vehicles for administration of construction activities.

   This would assure that proper site specific mitigation would be carried out.

b. All existing improvements (e.g., fences, pipelines, etc.) along project-related linear facilities (pipelines, transmission lines, etc.) would be protected and damage due to construction would be repaired.

   This should be effective in maintaining the present integrity of structures along rights-of-way.

c. All public land survey monuments, private property corners, and forest boundary monuments would be located, marked, and protected. In the event of destruction, they would be replaced.

   This should be effective in maintaining the present integrity of structures along rights-of-way.

d. Clearing would be restricted as per requirement of the appropriate land management agency. A clearing plan would be developed to address site specific needs. Determination of a hazard on the right-of-way would be a joint responsibility of the applicant and the appropriate Federal official consistent with the National Electric Safety Code and State or other electric safety requirements.

   This would be effective in reducing the amount of clearing and should reduce the adverse impacts of clearing. Electrical and other hazards along transmission lines would be eliminated by following established codes.

e. No modification and reshaping earthwork such as cuts and fills on construction roads, powerline corridors, or service facilities will be made without approval of the authorizing agency.

Removal and stockpiling of topsoil would be required at all construction sites and revegetated if necessary to prevent wind erosion and maintain soil integrity, unless otherwise directed by the appropriate Federal official. Along transmission lines, dozer, blade, or ripper-equipped tracked vehicles would not be allowed except for access road construction.

Preserving and/or replacing topsoil would aid in revegetation, reduce surface scaring, and thus reduce contrast. The topsoil could not, in all cases, be removed without mixing with subsurface soils. Depending upon the specific soil characteristics, this may reduce or enhance the productivity of the "topsoil" when it is replaced.

f. The BLM has determined that the proposed action may have an effect on an officially listed endangered species. Appendix 23 in the Draft EIS is the official USFWS biological opinion. BLM would not take any action which would jeopardize the continued existence of any threatened or endangered species. No operations would be permitted in any areas where bald or golden eagles and/or their nests would be molested during the nesting season.

This would be 100-percent effective in assuring compliance with the Endangered Species Act.

g. The applicant would provide funding for a botanist, approved by the appropriate Federal official, to survey for candidate, proposed, and officially listed threatened or endangered flora. The botanist would complete a 100-percent survey of all areas to be disturbed and designate those areas in which no disturbance would be permitted. The botanist would be available, as needed, during the construction period.

This would be effective in preventing damage to T&E plants and their habitats.

h. A transportation plan would be submitted by the applicant for review and approval by the appropriate land management agency. This plan would cover approval of temporary, reconstructed, and newly constructed roads and would include clearing work, rehabilitation, and use associated with transportation needs. Overland access could be specified in lieu of road construction or reconstruction.

This would be highly effective in assuring fewer environmental impacts associated with road construction activities.

i. Along linear facilities, rivers, streams, and washes would be crossed at existing roads or bridges, except at locations designated by the appropriate Federal official. The applicant would be required to install culverts or bridges at points where new permanent access roads would cross live streams to allow unobstructed fish passage. Where drainages would be crossed by temporary roads, dirt fills or culverts would be placed and removed upon completion of the project. Any construction activity in a perennial stream would be prohibited unless specifically allowed by the appropriate Federal official.

All stream channels and washes would be returned to as near natural state as possible.

This would be effective in reducing the number of streams that would be crossed and limiting long-term adverse impacts. Short-term impacts would still occur but the magnitude would be less with this mitigation.

j. Areas cleared of vegetation by construction or other activities associated with this project would be revegetated. The plant species and revegetation method used would vary according to situation and need. Successful re-establishment may necessitate subsequent seedings and plantings for complete rehabilitation of disturbed sites. Where commercial timber is cut, the trees would be measured and commercially sold or disposed of. All revegetation, including disposal of cleared vegetation, would be under the direction of the appropriate Federal official, in consultation with the private land owner and/or respective state wildlife management agency.

Soil cover would be reestablished but composition would, in most cases, be modified and, in general, there would be long-term changes in the general aspect of the impacted vegetation.

k. Prior to initiation of the construction phase, the applicant shall secure the services of a landscape architect to prepare the design and mitigation requirements for the project to meet the assigned visual resource management class and contrast ratings requirements, as stated in BLM Manual Section 8423 and/or Forest Service Manual 2380.

This would be effective in reducing the contrast of obtrusive structures. Even with design to complement form, line, color, and texture of the surroundings (e.g., painting structures natural and complementary colors), contrast with the landscape would, in certain instances, be high because of the inherent characteristics of the structures.

l. All trash, packing material, and other refuse would be removed from construction areas and salvaged or placed in approved sanitary landfills.

This would be effective in controlling construction-associated refuse. There would probably be some debris blown off the site by wind.

m. Nonspecular (non-reflective) conductors and compatible insulators would be installed on all transmission line systems. Tower bases would be required to blend with adjacent landscape.

This would be effective in reducing visibility and reflectiveness of powerlines and insulators.

n. All access roads blocked as the result of construction of project components would be rerouted or rebuilt and cattleguards or gates would be provided along the new access roads as directed by the appropriate Federal official. All access road construction would be handled in response to and approval of a submitted transportation plan. No permanent access roads would be allowed within 0.5-mile of bald or golden eagle nesting sites.

This would be effective in maintaining established access and preserving livestock management facilities.

o. Intensive archaeological surveys and clearances would be required for all project sites (as specified in BLM Manual 8111.14) prior to new construction. Properties eligible for inclusion in the National Register of Historic Places would be identified in consultation with the State Historic Preservation Officer (as specified in 36 CFR 800.4 and 36 CFR 63). Wherever possible, sites would be avoided. Where avoidance is not possible, mitigation of adverse effects to sites eligible for the National Register would be undertaken in compliance with 36 CFR 800. Sites discovered during construction or other activities authorized by the appropriate Federal official would be evaluated and managed as specified in 36 CFR 800. Memorandums of Understanding with the Utah and Wyoming State Historic Preservation Officers regarding protection of cultural resources have been signed. Consultation with the Colorado State Historic Preservation Officer has been initiated.

   Regardless of measures taken, damage to cultural artifacts could still occur, especially to subsurface sites. However, the appropriate Federal official would apply consistent management practices at all construction sites for all archaeological and historical resources. Information would be conveyed to the State Historic Preservation Officer or other agencies as appropriate. Regulatory compliance would be assured.

p. The applicant would be required to provide for the control of noxious weeds as directed by the appropriate Federal official.

   The probability of success of this mitigation would be commensurate with the techniques used.

q. The applicant would provide a qualified paleontologist who would be approved by the appropriate Federal official. The paleontologist would conduct an intensive survey of all areas to be disturbed which were identified as having high potential for significant paleontological resources. An approved paleontologist would be available, as needed, during surface disturbance. If the paleontologist determined that values would be disturbed, construction would be halted until appropriate action could be taken.

   The paleontologist would be able to avert most damage to paleontological resources by recording scientifically important data. There would remain a high potential for inadvertant damage to subsurface fossils.

r. In cooperation with the appropriate Federal official, a fire control plan would be prepared. Internal combustion engines would be equipped with approved exhaust mufflers or spark arrestors.

The possibility of fires would not be eliminated, but identifing liability for such fires could tend to make the applicant more cautious and various resources would be better protected against loss due to fire.

s. Construction-related travel would be restricted to approved access routes. Cross-country and ORV construction related travel would not be permitted except as authorized by the appropriate Federal official.

This may reduce impacts to soil, vegetation, and wildlife by a small percentage but, because actual access would be increased, ORV impacts due to public use could increase.

t. All power transmission lines would be designed to prevent electrocution of raptors.

This would be 100-percent effective in preventing the death of raptors or other large birds due to electric shock.

u. Construction of facilities would not be allowed when in conflict with existing mining and drilling operations.

This would be effective in reducing conflicts between the project and existing interests.

v. Issuance of rights-of-way for project facilities would be subject to valid existing prior rights.

This would safeguard the rights of persons or companies whose mineral or other claims preceed those of Deseret.

w. No property acquired or developed with assistance under Section 6-F of the Land and Water Conservation Fund Act would, without the approval of the Secretary of the Interior, be converted to other than public outdoor recreation uses. The Secretary would approve such conversion only if he found it to be in accord with the applicable comprehensive statewide outdoor recreation plan and only upon such conditions as he deemed necessary to assure the substitution of other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location.

This would assure that the public would not lose Section 6-F lands or free access to them. Also, lands of equal recreational value would be acquired should any 6-F lands be disposed of due to project needs. The success of this mitigation would vary by circumstance because of the attitudes of the land users and/or owners involved.

x. The applicant would comply with grounding and clearance requirements of the National Electric Safety Code and appropriate REA bulletins.

This would be 100-percent effective in assuring standard clearance and proper grounding procedures were adhered to.

y. A mining and reclamation plan for the Deserado Mine has been prepared by the company and submitted to OSM and the State of Colorado for review and recommendation of an action to the Assistant Secretary for Energy and Minerals, DOI, including recommendations of USGS and BLM. The company would be required to restore the lands affected to a condition capable of supporting the use which it was capable of supporting prior to any mining.

This would increase the likelihood that all safety and environmental factors would receive proper consideration before, during, and after mining operations.

z. Helicopters would be used to erect towers and string conductors in areas where access across the terrain or management constraints preclude standard construction methods or where designated by the appropriate Federal official.

Soil, vegetation, and aesthetics would be protected if this mitigation were used. Some disturbance would take place at the actual construction sites.

aa. Blasting would be prohibited by OSM within 500 feet of municipal water storage facilities, fluid transmission pipelines, gas or oil collection lines, or water and sewage lines.

The degree of effectiveness of this mitigation cannot be determined because the size of explosive charge, geologic, topographic, and ground water character would not be identical from place to place. This mitigation could generally be expected to protect these facilities from blast-caused damages.

bb. Water which has been appropriated to Federal agencies or other users would not be used without the written authorization from the appropriate Federal official or water right owner.

This mitigation would be effective in assuring that proper water use and allocation procedures were followed.

cc. A geologic survey and soils analysis will be completed and included in all proposed action considerations. Detailed geophysical and design investigations will be conducted to more accurately define unstable areas or faultline locations. Areas subject to mudflows, landslides, mudslides, avalanches, rock falls, and other types of mass movement would be avoided in locating the linear facilities. Where such avoidance is not practical, the design, based upon detailed field investigations and analysis, would provide measures to prevent damage due to the occurrence of mass movements.

Taking these hazards into consideration during the design stage of any project would help prevent structure or resource damage.

dd. Blasting would be prohibited by OSM within 1,000 feet of all dwellings, churches, hospitals, schools, and nursing facilities, unless otherwise approved by the appropriate Federal official.

Under most circumstances, 500 feet would give an adequate safety margin to prevent structural damage for a blasting operation. The size of the charge and circumstances would vary with the specific situation.

ee. Deseret proposes to purchase a power generation site at Bonanza or at Rangely. Under the provisions of Section 203 of FLPMA, BLM could convey the public lands for the power plant site by direct sale to Deseret if found to be in the public interest. The sale price of the public lands would be at the fair market value determined by real estate appraisal. In accordance with Section 209 of the FLPMA, all mineral rights would be reserved to the United States. In this regard, Deseret would be required to allow surface access for mineral extraction should Federal mineral leasing occur on the power plant site. Such access would be regulated by the leasing agency to provide compatibility between the two land uses.

The rights of existing mineral, oil, and gas lease holders would be protected. Land would be transferred from public to private surface ownership. The public would lose all right of access within the confines of the power plant site.

ff. The proposed Bonanza site lies within lands withdrawn as an oil shale reserve by Executive Order No. 5327. This Executive Order temporarily withdraws lands containing deposits of oil shale from lease or other disposal. The Bonanza site could not be sold unless this withdrawal were modified to permit such action.

An alternative to direct sale of public lands to Deseret would be the issuance of a right-of-way grant for a power generation site and auxiliary facilities. A right-of-way grant may be issued for the life of the project with a right of renewal. A right-of-way could also be granted for the plant site until the oil shale withdrawal was modified to permit sale of the land. This measure would ensure compliance with Executive Order No. 5327.

gg. A restoration, rehabilitation, and soil stabilization plan would be submitted by the applicant for review and approval by the appropriate land management agency. This plan would cover all restoration, rehabilitation, and soil stabilization measures for project areas other than project transportation access systems addressed under a transportation plan.

hh. Intensive on-site investigations would be conducted prior to initiation of construction activities. These would be joint investigations, involving applicant and authorizing agency representatives to designate areas for implementation of mitigation measures.

MEASURES REQUIRED OF THE APPLICANT BY STATE AND LOCAL ENTITIES

The same or additional mitigating measures could be required by State and local officials. Authority for this is granted in the State of Utah under the Utah Code Annotated (UCA) 1953, 63-2-1 and under similar laws for Colorado and Wyoming.

MONITORING AND DECOMMISSIONING

ENVIRONMENTAL MONITORING

Monitoring would be carried out as required by the appropriate State, local, or Federal regulatory agencies.

METEOROLOGICAL MONITORING

Deseret proposes to monitor meteorological conditions near the plant site as required by Federal or State authority. Wind speed and direction, humidity, temperature, and SO_2 and particulate levels would be measured. Precipitation and evaporation would also be recorded. Monitoring at the Deserado Mine started in January 1980 and is expected to continue during operation. Wind speed, wind direction, temperature, and particulate levels are being measured.

STACK EMISSION MONITORING

A flue gas monitoring system would continuously sample plant stack emissions. Monitoring instruments would record SO_2, nitrogen dioxide (NO_2), oxygen (O_2) concentrations, and opacity. Opacity measurements would aid in determining the visibility of stack emissions.

ATMOSPHERIC DEPOSITION MONITORING

The BLM is planning to monitor atmospheric deposition (including acid rain) in the Uinta Basin area to identify trends during the anticipated increased energy development in the region. The monitoring station would be part of a regional network to determine trends of atmospheric deposition.

SURFACE WATER QUALITY MONITORING

Water quality for plant use would be monitored throughout the project's life. A surface water monitoring program would be conducted at two stations on the White River, one station in Scullion Gulch, and four stations at other locations around the Deserado Mine.

As required, water quality data collected from surface water monitoring stations would be submitted quarterly to the appropriate regulatory authority.

GROUND WATER MONITORING PROGRAM

An ongoing program of water level monitoring would be conducted at 18 wells surrounding the Deserado Mine. Measurements would be made quarterly (January, April, July, and October). This program would continue until mining ceased or until the data showed that a change in measurement intensity was warranted.

Ground water quality samples from the area would be collected from within the mine on the previously outlined quarterly basis. Samples would be collected near the active face of the mine and at other points if perennial inflow were encountered.

Ground water monitoring in the vicinity of the power plant would also be required.

SUBSIDENCE MONITORING PROGRAM

Subsidence monitoring over the Deserado Mine would consist of on-the-ground surveys for surface tension cracks. This plan would be expanded to include installation of monuments over the mine and quarterly surveys.

DECOMMISSIONING

The continued operation of any or all parts of the project at the end of its estimated 35-year life would depend upon the needs of the participants, the relationship to other available energy sources, environmental impacts, economics, and technical viability at that time.

As any or all of the project systems could reach a point where they would no longer serve a useful purpose for Deseret or other related projects, the facilities would be removed in accordance with the laws and regulations existing at that time.

At this time, disposition of the power transmission systems at the conclusion of the project cannot be determined with any certainty. With the exception of the tower footings, which would probably not be removed entirely, the transmission lines would be dismantled, if no longer in service, and the land returned to its previous condition. Tower footings would be removed to below ground surface.

COMPARATIVE ANALYSIS OF ALTERNATIVES

Table 2-13 at the back of this chapter provides a comparative analysis summary of the alternatives and summarizes the unavoidable adverse impacts, irreversible and irretrievable commitments of resources, and the effect of short-term use of the environment on its long-term productivity which would result should the Moon Lake project be implemented. The impacts mitigated in Chapter 4 have been subtracted from the total impacts described in that chapter and remaining adverse impacts are set forth here.

Irreversible commitment is defined as incapable of being reversed; once initiated, action would continue. Actions committing future generations to continue a similar course may be considered irreversible. Irretrievable is defined as irrecoverable; not retrievable; once used, not replaceable.

Activities involved with the Moon Lake project would derive short-term values from the environment which would affect its long-term productivity. The short term is the project's predicted life - 35 years. Long term is the period beyond the project's predicted life.

Table 2-13 is organized so that a comparison of impacts can be made within system components. For example, the impacts expected from construction on the Bonanza plant site are compared to the impacts expected from construction on the Rangely site, and impacts expected from delivery of coal to each site are then compared.

THE AGENCY-PREFERRED ALTERNATIVE

The selection of agency-preferred alternatives is based on environmental information in the EIS, as well as other factors such as economics, agency policies, applicant need, engineering and reliability, and views received to date from other agencies and the public. The agency-preferred alternative has been reconsidered as a result of comments received on the Draft EIS and the discussion presented in that document has been modified here.

The agency-preferred alternative presented in this Final EIS is not the final decision. The formal Federal decisions regarding the Moon Lake project will be made by the Administrator of REA and the Director of BLM (in consultation with USFS) and will be based on separate records of decision as required by the CEQ regulations (1502.2). It is expected that these decisions will be made in May or June 1981, following a 30-day review period of this Final EIS. The "Record of Decision" which will be a public document accounting for the factors on which the decision was based.

Currently, the BLM, U.S. Forest Service (USFS), and the Rural Electrification Administration (REA) consider either plant site viable. The agency preferences are further described in the following sections.

BUREAU OF LAND MANAGEMENT AND U.S. FOREST SERVICE

The BLM and USFS propose to grant rights-of-way and other land use authorization for a power plant project including plant site and linear facilities. The power plant would initially be comprised of one 400-MW unit but ultimately a second 400-MW unit would be added. Sufficient land for both units would be granted at the authorized plant site. As noted above, either the Bonanza site or the Rangely site presently would be acceptable to the BLM and USFS. Land use authorizations would be granted initially for transmission lines only for unit 1. Those authorizations for transmission lines associated with unit 2 would be deferred until construction needs became imminent. All BLM and USFS authorizations would be subject to the application of appropriate mitigating measures presented in Chapters 2 and 4. Additionally, BLM would condition plant site approval with a provision that suitable arrangements be made prior to construction to prevent the project from jeopardizing the endangered fish species of the Green and White Rivers.

In response to comments on the EIS relating to the official USFWS biological opinion, and due to uncertainties of water sales and diversion transfers involved with the purchase of Flaming Gorge or agricultural water, the BLM has re-initiated consultation under Section 7 of the Endangered Species Act to explore additional, reasonable, and prudent alternatives for avoidance of jeopardy to endangered fish species.

It is expected that the results of the reconsultation will be available prior to BLM and REA decisions on the project. Any amendment to the official biological opinion will be considered in the decision-making process and will be available to the public with the official record of decision.

Specific BLM and USFS agency-preferred elements of the two plant site alternatives and the transmission system are further described below.

BONANZA POWER PLANT SITE

Preferred components of the Bonanza site are:

1. Bonanza Site Water Source

The detailed arrangements for the water source would depend on the outcome of ongoing endangered fish studies on the Green and White Rivers to be completed in Jaunary 1982. The agencies would support use of the Green River water as may be arranged to avoid jeopardy impacts to endangered fish species in the Green River. The water source for the coal mine would be use of White River water as may be arranged to avoid jeopardy impacts to endangered fish species.

2. Bonanza Site Water Transport System

An off-stream collection well system and pumping station near Walker Hollow and a 19-mile pipeline to the Bonanza plant site would be preferred. This is also Deseret's proposed system.

3. Bonanza Site Coal Source and Transport System

The Deserado Mine with electric railroad coal transport is the agency-preferred alternative. The railroad alternative would have fewer environmental impacts than other coal transport alternatives for this site and would have operational flexibility and reliability.

RANGELY POWER PLANT SITE

Preferred components of the Rangely site are:

1. Rangely Site Water Source

The detailed arrangements for the water source would depend on the outcome of ongoing endangered fish studies on the Green and White Rivers to be completed in January 1982. The agencies would support use of the White River water as may be arranged to avoid jeopardy impacts to endangered fish species in the White River. The water source for the coal mine would be use of White River water as may be arranged to avoid jeopardy impacts to endangered fish species.

2. Rangely Site Water Transport and Storage System

Use the Taylor Draw Reservoir (proposed by the Colorado River Water Conservancy District) as a holding pond and pump water via a 5-mile pipeline to the Rangely site. On-site limited water storage would be provided. Storage being planned by the CRWCD could provide for future delivery. Early priority water rights could be purchased from the Town of Rangely, the Yellow Jacket Water Conservancy District (YJWCD), or any other willing seller of conditional water rights to assure a reliable source.

3. Rangely Site Coal Source and Transport System

The Deserado Mine with transportation of coal via a 4-mile conveyor is the agency-preferred alternative for this site.

TRANSMISSION SYSTEM

The transmission system routing alternatives associated with either the Bonanza or Rangely plant sites would have the same type of impacts; however, the magnitude of the impacts would vary depending on the miles of each resource (e.g., vegetation types, visual quality) existing along the routes and the final location of the towers within the 1-mile-wide corridor.

The preferred corridor and routes were in part determined by agency policy, applicant need, and adaptability to future development. In addition, the preferred routes were largely determined by use of a procedure developed for evaluating potential environmental impacts of alternative electric transmission corridors. Refer to Appendix 12 of the Draft and Final EISs for the complete description, methodology, and final analysis of results of this evaluation procedure.

Transmission System From Either Bonanza or Rangely Plant Sites

Plant Site to Tank Hollow (345- 138-kV, Unit 1)

The BLM- and USFS-preferred route would be via Upalco-Fruitland. This is also the applicant-proposed route. This route would have the shortest corridor length (10 to 18 miles shorter from the Bonaza plant site and 10 to 33 miles shorter from the Rangely plant site) and fewer or equal environmental impacts when compared to other alternative routes. Corridor sharing with the Rocky Mountain Pipeline project would be possible for about 10 miles of the route. Approximately 42 miles of this route from the Bonanza plant site and 67 miles of this route from the Rangely plant site would be located within existing transmission routes. The preferred design would be with double circuit capacity in anticipation of the unit 2 power being directed to the Wasatch Front.

The BLM would not object to use of the plant site to Tank Hollow route via Castle Peak-Fruitland, provided that specific mitigation would be applied. This mitigation would include avoidance of Pariette Wash by placing the line along the southern boundary of the corridor, suitable flyway marking at the Green and White River crossings, and raptor perch designs on transmission line towers. The Castle Peak route may facilitate future oil shale-related corridor needs.

Tank Hollow to Mona (345-kV, Unit 1)

The BLM- and USFS-preferred route would be via Thistle Canyon. Thirty percent of this route would be within existing corridors. There are fewer or equal environmental impacts with this route as compared to other alternatives. The preferred design would be with double circuit capacity, also in anticipation of the unit 2 line. If only a single circuit design were used (with unit 2 power directed to the Uintah Basin area instead of the Wasatch Front) the preferred action would be joint use of the Hunter 3 345-kV lines between Deseret and UP&L for 8 miles in Spanish Fork Canyon.

In the event engineering or legal situations preclude the route via Thistle Canyon as feasible, the BLM- and USFS-preferred route would be via the Mill Creek variation in a corridor as analyzed in the Rocky Mountain Pipeline Project Draft EIS.

The applicant-proposed alternative via Dairy Fork crosses approximately 9 miles of steep mountainous terrain, exhibiting evidence of faulting and associated surficial instability. Construction activities along this 9-mile portion would create extensive surface disturbances (slope failures) due to steep and disected terrain features. The route via Dairy Fork also has the disadvantage of establishing a new corridor across the Manti-LaSal National Forest which would be contrary to the Federal Land Policy and Management Act (FLPMA).

138-kV Systems to Vernal and Rangely Substation

Bonanza Site

If the Bonanza site were selected, the BLM- and USFS-preferred route from Bonanza to the Rangely substation would be via Little Bonanza. This is also the applicant-proposed route. This route would have fewer environmental impacts and shorter corridor length than the Mellen Hill alternative.

There are no alternatives to the applicant's proposed route from Bonanza to the Vernal substation. No major impacts for the proposed route were identified.

Rangely Site

No alternatives to the applicant's proposed routes from the Rangely site to the Rangely and Vernal substations are presented in the EIS. No major impacts for the proposed routes were identified. These routes are acceptable to BLM and USFS.

Plant Site to Ben Lomond (345-kV, Unit 2)

If the Moon Lake unit 2 were to provide power to the Wasatch Front, the BLM- and USFS-preferred alternative would be to double circuit with the unit 1 line to Mona and then construct a new 345-kV line from Mona to Ben Lomond along the Wasatch Front. The only additional impacts with this alternative over those of the unit 1 transmission system would be those impacts associated with the Mona-Ben Lomond (Wasatch Front) corridor. The Mona to Ben Lomond route parallels existing transmission corridors for the total length of the route.

If the unit 1 line were placed on double circuit towers, it would be environmentally unacceptable to tower sharing or intertie with existing 138- or 345-kV lines. These system alternatives would require construction of new towers for the unit 2 345-kV line at locations where tower sharing had been implemented with the unit 1 line. The construction of new towers would require re-entry into the corridor and a repeat of environmental impacts associated with unit 1 construction. Overall, less environmental resource disturbance would result with double circuit capacity built into the total unit 1 line length to Mona, with no tower sharing or intertie systems with existing 138- or 345-kV transmission lines.

The applicant's proposed route to Ben Lomond via Lone Tree has no environmental advantages but would encounter several disadvantages. The corridor would conflict with existing land use plans of the Ashley National Forest: an existing scenic loop road and an ORV closure area. It would open a new corridor across scenic backcountry and would cross a wetland area.

RURAL ELECTRIFICATION ADMINISTRATION PREFERRED ALTERNATIVE

The REA-preferred action is to provide financing assistance to Deseret for construction of the Moon Lake project. Both the Bonanza and Rangely plant sites are considered by REA to be environmentally acceptable locations for two 400-MW coal-fired units. The deciding factor for both REA and Deseret must be whether the initial 400 MW unit can be developed within the time frame necessary to insure that member load requirements are met.

REA believes that the endangered fish species issue, which could affect the development of either plant site, is more serious on the White River because the timely development of the Taylor Draw Reservoir could be jeopardized. The construction of an impoundment is required to insure the delivery of a continuous supply of water to the Rangely plant site. Since a new impoundment is not required on the Green River to supply water to the Bonanza site and since use of Flaming Gorge Reservoir water during low flow periods would avoid jeopardy to the endangered fish according to the U.S. Fish and Wildlife Service, construction of the Green River water supply system might proceed without delay to the project schedule, if WPRS and Utah State Engineer approvals are obtained.

It is REA's determination that less uncertainties will be encountered at the Bonanza site when developed with the BLM-USFS preferred design components described previously.

Further discussion on the issues affecting the availability and timely development of a dependable water supply on the White River in Colorado are included in this Final EIS. Refer to the appropriate sections in the Summary and Chapter 4 as well as specific comment letter responses in Chapter 5.

With respect to the unit 1 transmission system routing alternatives from the plant site, REA agrees that the routing preferences of the BLM and USFS (Bonanza-Upalco-Fruitland-Tank Hollow-Thistle-Mona) would make maximum use of corridor sharing and represent the most environmentally acceptable alternative. While REA generally approves of the concepts of tower sharing and double-circuiting, in this instance, REA disagrees with tower sharing in Spanish Fork Canyon due to the catastrophic impact which could result from the loss of two major transmission lines by a single mishap. Nonetheless, REA and Deseret are willing to accept the concept of tower sharing with UP&L through the approximately 9 miles of Spanish Fork Canyon with the proviso that proportionate joint ownership and cost agreements (not wheeling agreements) can be arranged with no delay to this project. In the event that Deseret is denied a permit through the Spanish Fork Canyon, REA and Deseret would agree to avoid the Spanish Fork Canyon by utilization of the Mill Creek alternative. If such be the case, then REA would investigate the comparative impacts of the Spanish Fork Canyon and Mill Creek alternatives.

Should substantial oil shale loads develop south and west of Bonanza, REA agrees that Deseret should utilize the Castle Peak-Fruitland route to Tank Hollow. This route would allow Deseret to serve the new loads more economically by minimizing the amount of new high voltage transmission line required. Deseret would be required to apply the BLM stipulated mitigation measures along this route. REA concurs with BLM and USFS that either the northern or southern route from the plant site to Tank Hollow would be environmentally acceptable as long as appropriate mitigative measures were applied.

Regarding the routing of the proposed unit 2 345-kV transmission line, REA believes that the primary consideration for the routing of a second 345-kV line, the determination of future load centers, is too uncertain at the present time to justify the selection of a preferred route. While REA agrees that tower sharing with the proposed unit 1 line to Mona would be the most environmentally acceptable and economical alternative to the Ben Lomond substation, the sharing of tower structures by both 345-kV lines would introduce significant problems with respect to reliability (see Appendix 6 of the Draft EIS). In this instance, REA does not believe that the economic and environmental benefits that would be derived by double-circuiting of up to 74 miles of 345-kV lines are commensurate with the increased risk to the interruption of electrical service.

Deseret is expected to complete new load flow studies prior to the completion of a Record of Decision by BLM and REA. These studies should decrease the uncertainty over the terminal point of the unit 2 345-kV transmission line. If REA concurs with Deseret's decision to utilize corridors identified for the unit 1 - 345-kV transmission line, the borrower should have sufficient time to resolve the issue of either corridor sharing or double-circuiting with the unit 1 345-kV high voltage transmission line with BLM and USFS without jeopardizing the project schedule. If the projected load centers are not accessible by corridors evaluated in the EIS, additional documentation would be prepared within a time frame appropriate to the unit 2 schedule.

OFFICE OF SURFACE MINING

Since the publication of the Moon Lake Draft EIS, Western Fuels submitted a mining and reclamation plan permit application for their Deserado Mine near Rangely, Colorado to the Regional Director, Office of Surface Mining (OSM), Denver, Colorado. OSM and the Colorado Mine Land Division are currently preparing a Technical - Environmental Assessment (TEA) document based on an evaluation of the Deserado Mine plan for compliance with the Federal lease requirements, Surface Mining Control and Reclamation Act, the Colorado Permanent Regulatory Program. The Geological Survey is evaluating the mine plan to insure maximum economic recovery of the Federal coal estate. The BLM is evaluating the mine plan to insure their post mining land use will be achieved and the adequacy of measures to protect Federal resources not covered by the rights granted in the lease. Data from both of these agencies as well as any pubic comments will be included in the TEA documents. The Moon Lake Final EIS and the TEA will be made part of the Secretary's Record of Decision on this mine plan.

The Deserado Mine Plan is available for public review at the OSM Regional Office and the Colorado Mine Land Reclamation Division, both located in Denver, Colorado.

TABLE 2-13

Comparative Analysis Summary of
Unavoidable Adverse Impacts, Irreversible/Irretrievable
Commitment of Resources, and the Relationship of Short-Term Use of the Environment
to Maintenance and Enhancement of Long-Term Productivity
Assuming a 2-Unit Power Plant: Plant Site Alternatives

Environmental Elements (Resource)	Unavoidable Adverse Impacts	
	Bonanza Plant Site	Rangely Plant Site
Air Quality		
Standards	The release of pollutants into the atmosphere would be an unavoidable adverse impact. All State and Federal air quality standards would be met with 93.6 percent SO_2 control. However, oil shale development could possibly be limited because of consumption of the Colorado Category I SO_2 increment at Dinosaur from the power plant.	The release of pollutants into the atmosphere would be an unavoidable adverse impact. All State and Federal air quality standards would be met with 94.9 percent SO_2 control. However, oil shale development could possibly be limited because of consumption of the Colorado Category I SO_2 increment at Dinosaur. Interaction of pollutants would be less likely than with a plant at Bonanza.
Visibility	Under adverse meteorological conditions, a highly visible yellow-brown plume would be observed from Dinosaur National Monument. Impacts to visibility at Dinosaur would probably occur more frequently from a Bonanza plant than a Rangely plant due to prevailing air flow patterns.	Under adverse meteorological conditions, a highly visible yellow-brown plume would be observed from Dinosaur National Monument. Impacts to visibility at Dinosaur would probably occur less frequently from a Rangely plant than a Bonanza plant due to prevailing air flow patterns.
Soils	Mixing of some soil, soil compaction, and wind and water erosion would occur at the construction site. A small but unquantified amount of soil would be lost from erosion.	Mixing of some soil, soil compaction, and wind and water erosion would occur at the construction site. A small but unquantified amount of soil would be lost from erosion.
Water Resources	Withdrawal of 21,720 acre-feet of water from the Green River would remove 2 percent of its lowest recorded annual flow.	Withdrawal of 21,720 acre-feet of water from the Green River would remove 2 percent of its lowest recorded annual flow.
	TDS in the Green River would increase by 0.8 mg/ℓ at Green River, Utah and 1 mg/ℓ in the Colorado River at Imperial Dam in California.	TDS in the Green River would increase by 0.8 mg/ℓ at Green River, Utah and 1 mg/ℓ in the Colorado River at Imperial Dam in California.
Vegetation	Up to 82 acres of riparian vegetation and a number of cottonwoods could be removed by plant construction. Nine populations of a candidate threatened plant species (recommended for delisting) could be lost.	Up to 77 acres of riparian vegetation and a number of cottonwoods could be removed by plant construction. About 980 acres of seeded grassland would be lost. Two populations of a candidated threatened plant species (recommended for delisting) could be lost.
Animal Life		
Terrestrial	About 4 percent of the range of the Bonanza antelope herd would be occupied. Antelope would be disturbed during the critical fawning season. The population of the herd could be reduced due to loss of fawns, but this would be mitigated somewhat through the provision of permanent water sources in the Bonanza area.	About 2,202 acres of antelope habitat would be occupied. This is on the fringes of marginal habitat and impacts are expected to be minor.
	The Bonanza wild horse herd would abandon about 51 percent of their range. Combined with probable increase in harassment of the horses on the remaining 49 percent of their range, this action could result in the loss of a portion of this wild horse herd (Evans, 1981).	No issue identified.
Aquatic	Use of water at the Bonanza site would impact the Green or White Rivers by reducing flows and is likely to jeopardize the continued existence of three endangered fish species. The USFWS biological opinion is if water were purchased from Flaming Gorge, thus replacing water withdrawn from the Green River for the Moon Lake project, the endangered fishes in the Green River not be affected.	Use of water at the Range site would also impact the Green or White Rivers by reducing flows and is likely to jeopardize the continued existence of three endangered fish species. The USFWS biological opinion is that if water were purchased from Flaming Gorge, thus replacing water withdrawn from the Green River for the Moon Lake project, the endangered fishes would not be affected. Purchase of existing agricultural water rights for replacement in the White River in Colorado may avoid jeopardy to the fishes in the White River. No formal USFWS biological opinion on the Rangely Reservoir project has been developed.

Commitment of Resources		Relationship of Short-Term Use of Environment to Long-Term Productivity
Irreversible	Irretrievable	
No	Project Life	Burning of coal would release pollutants into the atmosphere, but emissions would cease when plant operations cease. During the predicted 35 years of operation, subsequent air-polluting projects in the area may be limited.
No	Project Life	Any reduction in visual range or clarity would cease when plant operations cease.
No	Yes	There would be a permanent loss of small amounts of soil. The soils general productivity would not be diminished except in localized areas. The soils in the occupied areas would be committed to a single use for the life of the project.
No	Yes	Water quantity and quality would revert to present condition with cessation of pumping.
No	Yes	
Yes	Yes	It is not likely that this site would be totally restored to its native condition. The continued existence of threatened plant species would not be jeopardized.
No	Yes	Reductions in herd size would be only temporary and with new permanent sources of water in the Bonanza area, the Bonanza antelope herd may expand.
No	Yes	A long-term loss of horses is expected.
Yes	Yes	Once lost, these species could not be replaced.

TABLE 2-13 (continued)

Environmental Elements (Resource)	Unavoidable Adverse Impact	
	Bonanza Plant Site	Rangely Plant Site
Cultural Resources	Twelve sites, none of which are eligible to the National Register, would be disturbed. Impacts would be mitigated but some loss of scientific and educational information could result.	Twenty-one sites, one of which may be eligible to the National Register, would be disturbed. Impacts would be mitigated but some loss of scientific and educational information could result.
Visual Resources	Construction of a generating plant would modify landscape character and would not meet VRM objectives of the affected area. The plant would be visible to travelers (280 ADT) on Utah Highway 45 and to travelers on the Uintah County road to Red Wash.	Construction of a generating plant would modify landscape character and would not meet VRM objectives. The power plant would be visible to travelers on the Staley-Gordon Mine road.
Land Use	A loss of 150 AUMs of forage on BLM sheep allotments would occur as a result of construction of a plant at the Bonanza site. Less than 5 percent of the forage in any allotment would be removed.	A loss of 94 AUMs of forage on BLM sheep allotments would occur as a result of construction of a plant at Rangely. About 21 percent of the forage in the Redwash Allotment would be removed.
Socioeconomics Units 1 and 2 Scenario (including population related to the Deserado Mine development)		
Housing	Increased housing demand would place a burden on the current limited, middle-income housing supply of both Rangely and Vernal.	Increased housing demand would place a burden on the current limited, middle-income housing supply of both Rangely and Vernal.
Sewer and Water Systems	These systems in both communities would be inadequate unless expanded or improved.	These systems in both communities would be inadequate unless expanded or improved.
Community Services	Both Vernal and Rangely would need to expand services to retain present ratios or meet State standards.	Both Vernal and Rangely would need to expand services to retain present ratios or meet State standards.
Education	Additional teachers and facilities would be required in both communities in order to maintain present ratios: Uintah School District: about 21 teachers and 15 classrooms would be required; Rangely School District (RE-4): about 22 teachers and no additional classrooms would be required.	Additional teachers and facilities would be required in both communities in order to maintain present ratios: Uintah School District: about 13 teachers and 11 classrooms would be required; Rangely School District (RE-4): about 34 teachers and 4 classrooms would be required.
Local Government Impacts	There would be an imbalance of property tax revenue between Uintah and Rio Blanco Counties. In 1986, Uintah County revenues from project facilities would exceed expenditures by about $6,941,000. Rio Blanco County expenditures would exceed revenues from these facilities by about $912,000. This does not account for personal property tax, sales tax, state income tax, etc., on individuals that would provide additional revenues to the counties.	There would be an imbalance of property tax revenue between Uintah and Rio Blanco Counties. In 1986, Uintah County would receive no revenues from project facilities, but expenditures would be about $1,240,000. Rio Blanco County revenues would exceed expenditures by about $10,906,000. This does not account for personal property tax, sales tax, state income tax, etc., on individuals that would provide additional revenues to the counties.
Quality of Life	In either Vernal or Rangely, the influx of newcomers into the project area could alter the prevailing social order by the importation of value systems different from that of long-time residents. However, the project area has already experienced substantial energy related growth since World War II. Therefore, it can be expected that typical boomtown scenario impacts of conflicts between long-time residents and newcomers with resultant changes in community structures would be considerably less than in similar communities that have not had prior experiences with energy development.	In either Vernal or Rangely, the influx of newcomers into the project area could alter the prevailing social order by the importation of value systems different from that of long-time residents. However, the project area has already experienced substantial energy related growth since World War II. Therefore, it can be expected that typical boomtown scenario impacts of conflicts between long-time residents and newcomers with resultant changes in community structures would be considerably less than in similar communities that have not had prior experiences with energy development.

TABLE 2-13 (continued)

Commitment of Resources		Relationship of Short-Term Use of Environment to Long-Term Productivity
Irreversible	Irretrievable	
Yes	Yes	Disturbance or destruction of cultural resources could result in a loss of some scientific understanding. Present salvage techniques do not ensure total information recovery. Once lost, the information could never be regained.
No	Project Life	Aesthetic values would change as perceived by the public, but change would not be permanent. Local people would become accustomed to the change, but persons traveling through the area may realize the short-term loss of the quality of the present visual experience.
No	Yes	The grazing capacity would be lost for the life of the project. Following reclamation, grazing capacity could increase.
No	Yes	There would be a short-term shortage of housing in both Rangely and Vernal which may be followed by a short-term excess in housing. This is not expected to be a long-term problem with the future projected energy-related population.
No	No	This growth would place a demand on the communities to develop adequate sewer and water systems somewhat sooner than they would without the project.
No	No	More manpower and equipment would be needed sooner with the project than without the project.
No	Yes	More teachers and classrooms would be needed sooner with the project than without the project.
Yes	Yes	Short-term deficiencies in Uintah or Rio Blanco County services would result. Deficiences would have to be corrected over the long term.
Yes	Yes	This is a long-term change in lifestyles and the quality of life.

TABLE 2-13 (continued)

Coal Source Alternatives[a]

Environmental Elements (Resource)	Unavoidable Adverse Impacts	Commitment of Resources		Relationship of Short-Term Use of Environment to Long-Term Productivity
		Irreversible	Irretrievable	
DESERADO MINE				
Topography	Depending on which mining technique is used in any given area at the mine, subsidence and earth related-fractures of 2 to 6 feet could occur above the mine. About 5,100 surface acres would be affected. Changes would likely be abrupt and noticed by the observer. Refuse disposal area would change the topography of about 600 acres.	Yes	Yes	Once subsidence occurred, the original topography could never be restored. Subsidence from long-wall mining would be almost immediate while room-and-pillar areas would continue to subside over a long period of time. Forty-five percent of the coal reserves of the mine (57,251,000 tons) would be trapped underground and would not be available for future use.
Water Resources	About 304 acre-feet of water would be required at the mine portal. This represents 0.06 percent of the average annual flow and 0.14 percent of the lowest recorded annual flow of the White River in Colorado. The water quality of the White or Green Rivers would not be altered. Subsidence would affect aquifers above the mine.	No	Yes	Present flows and quality of water would be reestablished with cessation of pumping. There is no extensive aquifer system, so no major impact to water supply would occur; but those aquifers that are present would be affected.
Vegetation	About 1,200 acres of vegetation, of which 120 is riparian, would be disturbed during development of the mine. No threatened or endangered species have been found on areas that would be affected by the Deserado Mine.	No	Yes	The disturbed areas could be revegetated within 10 to 20 years.
Animal Life				
Terrestrial	Removal of 609 acres could affect the existence of sage grouse and prairie dogs in the refuse disposal area.	No	No	During the life of the project, this habitat would be removed from usage by the species.
Aquatic	Withdrawal of water from the White River could jeopardize the continued existence of three endangered fish species during low-flow and drought conditions. However, if water normally withdrawn for irrigation were allowed to remain in the river, there would be no jeopardy to the species.	Yes	Yes	Once lost, these species could not be replaced.
Cultural Resources	Four sites, none of which are eligible to the National Register would be directly disturbed at the refuse disposal area. Forty-three sites four of which are eligible to the National Register, could be affected by subsidence from the mine. Impacts would be mitigated but some loss of scientific and educational information could result.	Yes	Yes	Disturbance or destruction of cultural resources could result in a loss of some scientific understanding. Present salvage techniques do not ensure total information recovery. Once lost, the information could never be regained.
Visual Resources	The refuse disposal area would modify the landscape character and would not meet BLM VRM objectives for the affected area.	No	Yes	There would be a short-term loss of visual quality but, beyond the life of the project, vegetation would be reestablished and visual quality restored. Persons traveling through the area could realize the short-term loss of the quality of the present visual experience.
Land Use	A loss of 84 AUMs of forage on two BLM sheep allotments would occur. Three percent of the forage on one allotment, and 9 percent on the other would be removed.	No	Yes	The grazing capacity in the allotments would be lost for the life of the project. Following reclamation, grazing capacity could be increased.
Socioeconomics	Population-related impacts from the Deserado Mine work force are included in the analysis of the Bonanza and Rangely plant site.	--	--	--

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[a] The unavoidable adverse impacts of open market purchase of coal will be covered in regional coal environmental impact statements. The unavoidable adverse impact of coal transport with open market purchase of coal would be as discussed for the on-highway method of coal transport for the Deserado Mine. Should the coal supply of the Deserado Mine be insufficient or if Deseret is unable to obtain additional leases contiguous to the mine, open market purchase of coal may be required for up to 15 years of the 35-year project.

TABLE 2-13 (continued)

Coal Transport Alternatives

Environmental Elements (Resource)	Unavoidable Adverse Impacts Electric Railroad and Off-Highway Truck Haul	Overland Conveyor	Slurry Pipeline
Bonanza Plant Site Alternatives			
Water Resources	No issue identified	No issue identified.	Withdrawal of 1,375 acre-feet from the White River for slurry operation would represent 0.27 percent of the average flow and 0.62 percent of the lowest recorded annual flow.
Vegetation	The railroad would remove 5 acres of riparian vegetation. The railroad mainline would pass through the habitat of a proposed threatened plant species. Off-highway truck haul would remove 4 acres of riparian vegetation. The off-highway truck haul route would pass through the habitat of one proposed threatened plant species.	The conveyor would remove 1 acre of riparian vegetation. It would also pass through habitat of seven threatened and endangered plant species (one proposed threatened, one proposed endangered, and five recommended for delisting).	The slurry pipeline would remove 2 acres of of riparian vegetation. It would also pass through habitat of seven threatened and endangered plant species (one proposed threatened, one proposed endangered, and five recommended for delisting).
Animal Life	Both systems would result in an increase in wildlife mortality due to increased vehicle traffic.	No issue identified.	Withdrawal of water from the Green or White Rivers for the Moon Lake project by itself would not likely result in a loss of any fish species nor adversely affect their essential habitat. However, the cumulative impacts of water withdrawal for this and other proposed projects could jeopardize the continued existence of three officially endangered fish species of the Colorado River system.
Cultural Resources	Construction of the railroad system could damage or destroy 16 sites, one of which may be eligible to the National Register.	Construction of the conveyor could disturb 21 sites, none of which are eligible to the National Register.	Construction of the slurry could disturb 9 sites, none of which are eligible to the National Register.
Visual Resources	Both systems would be a visual intrusion in the Devils Playground, an area of geologic interest (Class B scenery, Management Class IV). The coal storage and loadout area would modify landscape character and would not meet VRM objectives for the affected areas	The conveyor would not meet VRM objectives for 1 mile of Class III area. It would be of high visual contrast to travelers on Colorado Highway 64 (2,000 ADT) and on Utah Highway 45 (280 ADT). It would be an intrusion in the Devils Playground.	No issue identified.
Land Use	No issue identified.	No issue identified.	No issue identified.
Rangely Plant Site Alternatives			
Water Resources	No issue identified (the electric railroad is not an alternative for the Rangely site).	No issue identified.	No issue identified (the slurry pipeline is not an alternative for the Rangely site).
Cultural Resources	No issue identified (the electric railroad is not an alternative for the Rangely site).	Construction of the overland conveyor could damage or destroy one site. It is not eligible to the National Register.	No issue identified (the slurry pipeline is not an alternative for the Rangely site).

TABLE 2-13 (continued)

On-Highway Truck Haul	Commitment of Resources		Relationship of Short-Term Use of Environment to Long-Term Productivity
	Irreversible	Irretrievable	
No issue identified.	No	Yes	Water quality and quantity would revert to present condition with cessation of pumping.
No issue identified.	No	Yes	It is not likely that the continued existence of any plant species would be jeopardized. Disturbed areas would not likely be restored to their native condition.
Deer, antelope, and sage grouse mortality would increase on affected highways.	No	Yes	Reduction in populations could occur for the life of the project. Populations could return to present levels within a few years after the project life.
Construction of 5.0 miles of road could disturb 6 sites, none of which are eligible to the National Register.	Yes	Yes	Disturbance or destruction of cultural resources would result in a loss of some scientific understanding. Present salvage techniques do not ensure total information recovery. Once lost, the information could never be regained.
The road would be a visual intrusion in the Devils Playground, an area of geologic interest (Class B scenery, Management Class IV).	No	Project Life	There would be a short-term loss of visual quality, but this is not expected to last beyond the life of the project.
There would be approximately a 323-percent increase in daily traffic on Utah Highway 45 and up to 117 percent on the affected portion of U.S. 40. Trucks would create a safety hazard and several accidents per year could be expected. Highway damage, with associated maintenance costs, would increase. Noise levels at the Town of Dinosaur would increase to approximately 86 dBA. Increases in frequency and magnitude of noise would be realized. This could result in a disruption of community activities.	No	Yes	During the life of the project, highway maintenance costs would increase. The daily traffic would return to normal following the project. Loss of human life from accidents is irreversible.
No issue identified.	No	Yes	Water quality and quantity would revert to its present condition with cessation of pumping.
No issue identified.	Yes	Yes	Disturbance or destruction of cultural resources could result in a loss of some scientific understanding. Present salvage techniques do not ensure total information recovery. Once lost, the infomation could never be regained.

TABLE 2-13 (continued)

Water Source Alternatives

Environmental Elements (Resource)	Unavoidable Adverse Impacts		
	Taylor Draw Reservoir	Wolf Creek Reservoir	Purchase of Agricultural Water For Release into the White River
Rangely Site			
Water Resources	Water temperature would be reduced below the Taylor Draw Dam and flow would be altered.	Water temperature would be reduced below the Wolf Creek Dam and flow would be altered.	Reduction in flow is unknown. Salinity would be reduced through elimination of irrigation return flows that are typically high in TDS.
Vegetation	Fifty acres of riparian vegetation would be inundated. No threatened or endangered plant survey has been done in this area.	Eight hundred and sixty-three acres of riparian vegetation would be inundated. No threatened or endangered plant survey has been done in this area.	No issue identified.
Animal Life			
Terrestrial	Minimal amounts of deer winter range would be lost.	The reservoir would inundate one bald eagle roost area. Five hundred and five acres of critical deer winter range would be lost.	No issued identified.
Aquatic	The dam would create a barrier and block the movement of fish from the Green River. Colorado squawfish would not utilize the altered habitat.	The dam would create a barrier and block the movement of fish from the Green River. Colorado squawfish would not utilize the altered habitat.	Actual reduction in flows and its effects on endangered fish are unknown.
Cultural Resources	Two known sites, both of which may be eligible to the National Register, could be disturbed or damaged during construction. Intensive inventories of this area have not been done.	Two known sites, both of which may be eligible to the National Register, could be disturbed or damaged during construction. Intensive inventories of this area have not been done.	No issue identified.
Visual Resources	The dam would modify landscape character and would not meet BLM's VRM objectives in the affected area.	The dam would modify landscape character and would not meet BLM's VRM objectives in the affected area.	No issue identified.
Land Use	Four hundred acres, 176 of which are prime farmlands would be inundated. This represents 2.5 percent of the irrigated land in Rio Blanco County and 7 percent of the prime farmlands along the White River near Rangely. Thirty-one hundred linear feet of Colorado Highway 64 would be inundated and would have to be relocated. Traffic flow would be temporarily interrupted.	Four hundred and three acres of irrigated (non-prime) farmland would be inundated. Four ranch houses and one suspension bridge with an exposed gas pipeline would also be inundated. This represents 2.5 percent of the irrigated land in Rio Blanco County.	Deseret would purchase an amount equivalent to 47 percent of the water presently used for irrigated agriculture in the upper White River basin. This gives an indication of the percent of agricultural land in the upper White River basin that could be occasionally retired.

TABLE 2-13 (continued)

Commitment of Resources		Relationship of Short-Term Use of Environment to Long-Term Productivity
Irreversible	Irretrievable	
No	Yes	This effect of the reservoir would continue for the life of the reservoir. With purchase of agricultural water, water quantity and quality would return to normal after the life of the Moon Lake project.
No	Yes	With the reservoir, vegetation would be lost for the life of the reservoir and could be reestablished if the reservoir were filled or drained. With the collection well system, riparian vegetation would reestablish on all but the occupied acreage (3 acres) within 10 to 20 years.
Yes	Yes	The effect on bald eagles would continue until new cottonwoods grew along the shoreline (50-80 years). The deer winter range would be unavailable to deer for the life of the reservoir and beyond.
Yes	Yes	This could be a long-term loss of habitat. The dam could likely be a barrier in perpetuity. Long-term effects of purchase of agricultural water are not known.
Yes	Yes	Disturbance or destruction of cultural resources would result in a loss of some scientific understanding. Present salvage techniques do not ensure total information recovery. Once lost, the infomation could never be regained.
Yes	Yes	This could be a long-term loss of the resource.
No	Yes	These losses would be for the life of the project. Water quality and quantity would return to normal following the end of the project.

TABLE 2-13 (continued)

Environmental Elements (Resource)	Water Transport Alternatives[a] Unavoidable Adverse Impacts: Green River Pipeline	White River Pipelines
Bonanza Site		
Vegetation	Thirty acres of riparian vegetation could be removed during construction. The route passes through habitat of five threatened or endangered plant species, one proposed as threatened and four recommended for delisting).	No issue identified.
Cultural Resources	Two sites, neither of which is eligible to the National Register, could be disturbed or damaged during construction.	Three sites, one of which may be eligible to the National Register, could be disturbed or damaged during construction.
Visual Resources	No issue identified.	The pipeline would not meet the VRM objectives for 2 miles of VRM Class II area until revegetation was achieved (10-20 years).
Rangely Site[b].		
Vegetation	Ten acres of riparian vegetation could be removed during construction.	Less than 1 acre of riparian vegetation could be removed during construction.
Cultural Resources	One site, which is not eligible to the National Register, could be disturbed or damaged during construction.	No sites have been identified on this route.
Visual Resources	No issues identified.	The pipeline would not meet VRM Class II VRM objectives for 3 miles until revegetation was achieved (10-20 years).

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[a] The impacts on water quality and quantity in the Green and White Rivers are presented with the discussion on plant site alternatives.

[b] No major unavoidable adverse impacts have been identified for the Taylor Draw Reservoir pipeline to the Rangely site. Only the impacts of the Wolf Creek Reservoir pipeline are listed in the table.

TABLE 2-13 (continued)

Commitment of Resources		Relationship of Short-Term Use of Environment to Long-Term Productivity
Irreversible	Irretrievable	
No	Yes	Vegetation could be restored to its native condition in 10 to 20 years. The continued existence of threatened or endangered plant species would not be jeopardized.
Yes	Yes	Disturbance or destruction of cultural resources would result in a loss of some scientific understanding. Present salvage techniques do not insure total information recovery. Once lost, the infomation could never be regained.
No	Yes	Visual intrusion would only be temporary until vegetation was restored.
No	Yes	Vegetation could be restored to its native condition in 10-20 years.
Yes	Yes	Disturbance or destruction of cultural resources would result in a loss of some scientific understanding. Present salvage techniques do not insure total information recovery. Once lost, the infomation could never be regained.
No	Yes	Visual intrusion would only be temporary until vegetation was restored.

TABLE 2-13 (continued)

Transmission System Alternatives
Bonanza Unit 1 Routing Alternatives - 345-138-kV Combined System

Environmental Element (Resource)	Unavoidable Adverse Impacts		
	Bonanza-Tank Hollow		
	via Upalco-Fruitland	via Upalco-Sowers Canyon	via Castle Peak-Sowers Canyon
Soils	Route would cross 45 miles of severe erosion hazard soils. Erosion would be localized on disturbed areas and no impacts on other resources are expected. Complete revegetation and stabilization of soils could take 10 to 20 years. Twelve miles of highly unstable steep mountainous terrain exists within this 45 mile area. Construction activities in this terrain would create extensive surface disturbance along the corridor and access roads. It is possible that instability and slope failure would be induced by construction along this route.	Route would cross 57 miles of severe erosion hazard soils. Erosion would be localized on disturbed areas and no impacts on other resources are expected Complete revegetation and stabilization of soils could take 10 to 20 years.	Route would cross 57 miles of severe erosion hazard soils. Erosion would be localized on disturbed areas and no impacts on other resources are expected Complete revegetation and stabilization of soils could take 10 to 20 years.
Vegetation	12.5 miles of threatened or endangered species habitat would be crossed by this route. Even with federally required measures, it is possible that individual plants of the species could be destroyed. The continued existence of the species would not be jeopardized.	19.5 miles of threatened or endangered species habitat would be crossed by this route. Even with federally required measures, it is possible that individual plants of the species could be destroyed. The continued existence of the species would not be jeopardized.	45 miles of threatened or endangered species habitat would be crossed by this route. Even with federally required measures, it is possible that individual plants of the species could be destroyed. The continued existence of the species would not be jeopardized.
Animal Life	There would be a small but unquantifiable loss of waterfowl (9 miles of flyway) and other birds from collisions with powerlines and towers. There would be an increase in illegal shooting loss of raptors and big game from new access provided by access roads.	There would be a small but unquantifiable loss of waterfowl (3 miles of flyway) and other birds from collisions with powerlines and towers. There would be an increase in illegal shooting loss of raptors and big game from new access provided by access roads.	There would be a small but unquantifiable loss of waterfowl (14 miles of flyway) and other birds from collisions with powerlines and towers. There would be an increase in illegal shooting loss of raptors and big game from new access provided by access roads.
Cultural Resources	No sites have been identified along this route.	No sites have been identified along this route.	No sites have been identified along this route.
Visual Resources and Recreation	The transmission lines would introduce a medium to high increment in contrast at crossings over 6 highways having a total ADT of 7,870. Aesthetic values would be reduced. The line would not meet VRM objectives for 16.5 miles of VRM Class II area. Visitors could be distracted from their recreational pursuits by the presence of new transmission lines. The transmission line would be visible from four recreation attraction areas having special values.	The transmission lines would introduce a low to medium increment in contrast at crossings over 6 highways having a total ADT of 1,120. Aesthetic values would be reduced. Visitors could be distracted from their recreational pursuits by the presence of new transmission lines. The transmission line would be visible from one recreation attraction area and a summer home area having special values.	The transmission lines would introduce a medium to high increment in contrast at crossings over 3 highways having a total ADT of 7,130. Aesthetic values would be reduced. The transmission lines would be visible from a summer home area having special value.
Land Use	New access into USFS off-road vehicle closure areas would lead to an increase in ORV use.	No issue identified.	No issue identified.

TABLE 2-13 (continued)

	Commitment of Resources		Relationship of Short-Term Use of Environment to Long-Term Productivity
Via Castle Peak-Fruitland	Irreversible	Irretrievable	
Route would cross 45 miles of severe erosion hazard soils. Erosion would be localized on disturbed areas and no impacts on other resources are expected. Complete revegetation and stabilization of soils could take 10 to 20 years.	No	Yes	Increases in erosion would continue until soils were revegetated within 10 to 20 years.
41 miles of threatened or endangered species habitat would be crossed by this route. Even with federally required measures, it is possible that individual plants of the species could be destroyed. The continued existence of the species would not be jeopardized.	Yes	Yes	Vegetation could be restored to its native condition in 10 to 20 years. Once displaced, small populations of threatened and endangered plants may never be reestablished.
There would be a small but unquantifiable loss of waterfowl (18 miles of flyway) and other birds from collisions with powerlines and towers. There would be an increase in illegal shooting loss of raptors and big game from new access provided by access roads.	No	Yes	Short-term decreases in local populations of waterfowl could result. Losses would continue until removal of the transmission lines. This could continue beyond the life of the generating station depending on the need for the transmission lines.
Construction could damage one site. It is not eligible for nomination to the National Register.	Yes	Yes	Disturbance or destruction of cultural resources could result in a loss of some scientific understanding. Present salvage techniques do not ensure total information recovery. If lost, the information could never be regained.
The transmission lines would introduce a medium to high increment in contrast at crossings over 3 highways having a total of 5,840. Aesthetic values would be reduced. The line would not meet VRM class objectives for 6 miles of VRM Class II area. Visitors could be distracted from their recreational pursuits by the presence of new transmission lines. The transmission line would be visible from two recreation attraction areas having special values.	No	Yes	Visual intrusion would remain for the life of the transmission lines.
New access into USFS off-road vehicle closure areas would lead to an increase in ORV use.	Yes	Yes	Once used by ORVs the new access would likely be kept open indefinitely through continued use. The result would be cumulative with long-term adverse impacts on soil.

Bonanza or Rangely Unit 1 Routing Alternatives
Price Canyon to Water Hollow Single Circuit 345-kV

Environmental Element (Resource)	Unavoidable Adverse Impacts		
	via Eccles Canyon	Via Sowers Canyon/Dairy Fork	Via Sowers Canyon/Thistle
Soils	Route would cross 39.5 miles of severe erosion hazard soils. Highly dissected steep slopes exist for 5.5 miles. Erosion would be localized on disturbed areas. Complete revegetation and stabilization of soils could take 10 to 20 years unless slumps and slides result; complete revegetation and stabilization of soils on slump and slide areas would be improbable.	Route would cross 54.5 miles of severe erosion hazard soils. Highly dissected steep soils exist for 5.0 miles. Erosion would be localized on disturbed areas. Complete revegetation and stablization of soils could take 10 to 20 years. It is possible that instability and slope failure would be induced by construction over the Dairy Fork portion of this route.	Route would cross 55.0 miles of severe erosion hazard soils. Erosion would be localized on disturbed areas. Complete revegetation and stabilization of soils could take 10 to 20 years.
Visual Resources and Recreation	The transmission line would introduce a high increment in contrast over heavily used dispersed and developed recreation areas; i.e., campground, summer homes, scenic road, youth camp, winter sports concentration area. The line would not meet VRM objectives for 6.3 miles VRM Class II and III areas. Visitors would be distracted from recreational pursuits by the presence of a new transmission line. The transmission line in this area would be visible from nine recreation areas having special values.	The transmission line would introduce a medium increment in contrast at one highway crossing and along 25 miles of a major Federal highway and a high increment in contrast over 29.5 miles of undeveloped areas.	The transmission line would introduce a medium increment in contrast at one highway crossing and along 30 miles of a major Federal highway and a medium increment in contrast along 10 miles of a State highway.
Land Use	This route would cross 1.0 mile of coal mining operations. The transmission line would conflict with existing and continued coal mining developments. Projected subsidence from coal mining operations would cause difficulties with transmission line tower site locations. The route would conflict with the scenic road designation for Skyline Drive, so designated by National Forest Land Management Planning feasibility studies.	No issue identified.	No issue identified.

TABLE 2-13 (continued)

Commitment of Resources		Relationship of Short-Term Use of Environment to Long-Term Productivity
Irreversible	Irretrievable	
Yes	Yes	Increases in erosion would continue until soils were revegetated and stabilized. The Eccles Canyon route could experience long-term productivity loss on slump and slide areas resulting from powerline construction activities.
No	Yes	Visual intrusion would remain for the life of the transmission lines.
No	Yes	The transmission line towers could be subject to unstable topography. The transmission line and towers would conflict with coal mining operations and facilities. The result could be adverse impacts on the soil resource which are cumulative and long term.

TABLE 2-13 (continued)

Bonanza or Rangely Unit 1 Routing Alternatives
Tank Hollow to Mona 345-kV System

Environmental Element (Resource)	Unavoidable Adverse Impacts		
	via Dairy Fork	via Thistle Canyon	via Utah Valley
Soils	Route would cross 48.8 miles of severe erosion hazard soils. Erosion would be localized on disturbed areas and no impacts on other resources are expected. Complete revegetation and stabilization of soils could take 10 to 20 years. Nine miles of highly unstable steep mountainous terrain exists within this 48.8 mile area. Construction activities in this terrain would create extensive surface disturbance along the corridor and access roads. It is possible that instability and slope failure would be induced by construction along this route.	Route would cross 50.1 miles of severe erosion hazard soils. Erosion would be localized on disturbed areas and no impacts on other resources are expected. Complete revegetation and stabilization of soils could take 10 to 20 years.	Route would cross 41.6 miles of severe erosion hazard soils. Erosion would be localized on disturbed areas and no impacts on other resources are expected. Complete revegetation and stabilization of soils could take 10 to 20 years.
Vegetation	2.0 miles of threatened or endangered species habitat would be crossed by this route. Even with federally required measures, it is possible that individual plants of the species could be destroyed. The continued existence of the species would not be jeopardized. Twelve miles of wet meadow marsh could be crossed. This vegetation type is fragile and of special management concern.	2.2 miles of threatened or endangered species habitat would be crossed by this route. Even with federally required measures, it is possible that individual plants of the species could be destroyed. The continued existence of the species would not be jeopardized.	2.2 miles of threatened or endangered species habitat would be crossed by this route. Even with federally required measures, it is possible that individual plants of the species could be destroyed. The continued existence of the species would not be jeopardized.
Cultural Resources	Construction could damage 2 sites, neither of which are eligible for nomination to the National Register.	Construction could damage 2 sites, neither of which are eligible for nomination to National Register.	No sites have been identified along this route.
Visual Resources and Recreation	The transmission lines would introduce a medium to high increment in contrast at crossings over 3 highways having a total ADT of 9,775. Aesthetic values would be reduced.	The transmission lines would introduce a medium to high increment in contrast at crossings over 4 highways having a total ADT of 14,775. Aesthetic values would be reduced.	The transmission lines would introduce a medium to high increment in contrast at crossings over 4 highways having a total ADT of 14,800. Aesthetic values would be reduced. The line would not meet VRM objectives for 19.3 miles of VRM Class II area. Visitors could be distracted from their recreational pursuits by the presence of new transmission lines. The transmission line would be visible from four recreation attraction areas having special values.
Land Use	This route would cross 1 mile of urban area and could conflict with future expansion.	This route would cross 1 mile of urban area and could conflict with future expansion.	This route would cross 6 miles of urban area and could conflict with future expansion.

TABLE 2-13 (continued)

Commitment of Resources		Relationship of Short-Term Use of Environment to Long-Term Productivity
Irreversible	Irretrievable	
No	Yes	Increases in erosion would continue until soils were revegetated within 10 to 20 years.
Yes	Yes	Vegetation could be restored to its native condition in 10 to 20 years. Once displaced, small populations of threatened or endangered plants may never be reestablished.
Yes	Yes	Disturbance or destruction of cultural resources could result in a loss of some scientific understanding. Present salvage techniques do not ensure total information recovery. Once lost, the information could never be regained.
No	Yes	Visual intrusion would remain for the life of the transmission lines.
Yes	Yes	Once used by ORVs the new access would likely be kept open indefinitely through continued use. Urban conflicts would continue for the life of the project. The result can be cumulative and long-term adverse impacts to soil.

TABLE 2-13 (continued)

Bonanza Unit 1 Routing Alternatives
Bonanza to Vernal and Bonanza to Rangely
138-kV System

Environmental Element (Resource)	Unavoidable Adverse Impacts		
	Bonanza-Vernal	Bonanza-Rangely Sub. via Little Bonanza	Bonanza-Rangely Sub. via Mellon Hill
Vegetation	8 miles of threatened or endangered species habitat would be crossed by this route. Even with federally required measures, it is possible that individual plants of the species could be destroyed. The continued existence of the species would not be jeopardized.	6.2 miles of threatened or endangered species habitat would be crossed by this route. Even with federally required measures, it is possible that individual plants of the species could be destroyed. The continued existence of the species would not be jeopardized.	3 miles of threatened or endangered species habitat would be crossed by this route. Even with federally required measures, it is possible that individual plants of the species could be destroyed. The continued existence of the species would not be jeopardized.
Animal Life	There would be a small but unquantifiable loss of waterfowl (1 mile of flyway) and other birds from collisions with powerlines and towers. There would be an increase in illegal shooting loss of raptors and big game from new access provided by access roads.	There would be a small but unquantifiable loss of waterfowl (1 mile of flyway) and other birds from collisions with powerlines and towers. There would be an increase in illegal shooting loss of raptors and big game from new access provided by access roads.	There would be a small but unquantifiable loss of birds from collisions with powerlines and towers. There would be an increase in illegal shooting loss of raptors and big game from new access provided by access roads.
Cultural Resources	No sites have been identified along this route.	Construction could damage 1 known site which is not eligible for nomination to the National Register.	No sites have been identified along this route.
Visual Resources and Recreation	The transmission lines would introduce a medium to high increment in contrast at crossings over 3 highways having an unknown total ADT. Aesthetic values would be reduced.	The transmission lines would introduce a medium to high increment in contrast at crossings over 1 highway with a total ADT of 285. Aesthetic values would be reduced.	The transmission lines would introduce a medium to high increment in contrast at crossings over 2 highways having a total ADT of 2,285. Aesthetic values would be reduced.
Land Use	No issue identified.	This route would cross 2 miles of urban area and could conflict with future expansion.	This route would cross 3 miles of urban area and could conflict with future expansion.

TABLE 2-13 (continued)

Commitment of Resources		Relationship of Short-Term Use of Environment to Long-Term Productivity
Irreversible	Irretrievable	
Yes	Yes	Vegetation could be restored to its native condition in 10 to 20 years. Once displaced, small populations of threatened or endangered plants may never be reestablished.
No	Yes	Short-term decreases in local populations of waterfowl could result. Losses would continue until removal of the transmission lines. This could continue beyond the life of the generating station depending on the need for the transmission lines.
Yes	Yes	Disturbance or destruction of cultural resources could result in a loss of some scientific understanding. Present salvage techniques do not ensure total information recovery. Once lost, the information could never be regained.
No	Yes	Visual intrusion would remain for the life of the transmission lines.
Yes	Yes	Urban conflicts would continue for the life of the project.

TABLE 2-13 (continued)

Bonanza Unit 2 Routing Alternatives
Bonanza to Mountain Green - 345-kV System

Environmental Element (Resource)	Unavoidable Adverse Impacts via Lone Tree	via Upalco-Fruitland	via Castle Peak-Fruitland
Soils	Route would cross 103.5 miles of severe erosion hazard soils. Erosion would be localized on disturbed areas and no impacts on other resources are expected. Complete revegetation and stabilization of soils could take 10 to 20 years.	Route would cross 62 miles of severe erosion hazard soils. Erosion would be localized on disturbed areas and no impacts on other resources are expected Complete revegetation and stabilization of soils could take 10 to 20 years.	Route would cross 62 miles of severe erosion hazard soils. Erosion would be localized on disturbed areas and no impacts on other resources are expected Complete revegetation and stabilization of soils could take 10 to 20 years.
Vegetation	17 miles of threatened or endangered species habitat would be crossed by this route. Even with federally required measures, it is possible that individual plants of the species could be destroyed. The continued existence of the species would not be jeopardized. 12 miles of wet meadow marsh could be crossed. This vegetation type is fragile and of special management concern.	9.5 miles of threatened or endangered species habitat would be crossed by this route. Even with federally required measures, it is possible that individual plants of the species could be destroyed. The continued existence of the species would not be jeopardized.	40 miles of threatened or endangered species habitat would be crossed by this route. Even with federally required measures, it is possible that individual plants of the species could be destroyed. The continued existence of the species would not be jeopardized.
Animal Life	There would be a small but unquantifiable loss of waterfowl (27 miles of flyway) and other birds from collisions with powerlines and towers. There would be an increase in illegal shooting loss of raptors and big game from new access provided by access roads.	There would be a small but unquantifiable loss of waterfowl (18.5 miles of flyway) and other birds from collisions with powerlines and towers. There would be an increase in illegal shooting loss of raptors and big game from new access provided by access roads.	There would be a small but unquantifiable loss of waterfowl (27.5 miles of flyway) and birds from collisions with powerlines and towers. There would be an increase in illegal shooting loss of raptors and big game from new access provided by access roads.
Cultural Resources	Construction could damage 3 sites, 1 of which has been nominated to the National Register. The Old Carter Military Road would be paralleled and crossed for 15 miles.	No sites have been identified along this route.	Construction could damage 1 site, which is not eligible for nomination to the National Register.
Visual Resources and Recreation	The transmission lines would introduce a medium to high increment in contrast at crossings over 7 highways having a total ADT of 13,025. Aesthetic values would be reduced. The line would not meet VRM objectives for 24 miles of VRM Class II area. Visitors could be distracted from their recreational pursuits by the presence of new transmission lines. The transmission line would be visible from six recreation attraction areas having special values. Segment 35 would be within 1 mile of the proposed High Uintas Wilderness Area eastern boundary and, because of the open vistas of the elevation, would be visible from within the proposed wilderness area.	The transmission lines would introduce a medium to high increment in contrast at crossings over 4 highways having a total ADT of 11,780. Aesthetic values would be reduced. The line would not meet VRM objectives for 14.5 miles of VRM Class II area. Visitors could be distracted from their recreational pursuits by the presence of new transmission lines. The transmission line would be visible from five recreation attraction areas having special values.	The transmission lines would introduce a medium to high increment in contrast at crossings over 6 highways having a total ADT of 14,800. Aesthetic values would be reduced. The line would not meet VRM objectives for 2 miles of VRM Class II area. Visitors could be distracted from their recreational pursuits by the presence of new transmission lines. The transmission line would be visible from three recreation attraction areas having special values.
Land Use	A loss of prime commercial timber would occur along Segment 35 in Ashley National Forest. New access into USFS off-road vehicle closure areas would lead to an increase in ORV use. This route would cross 6 miles of urban area and could conflict with future expansions.	No issue identified.	No issue identified.

TABLE 2-13 (continued)

Commitment of Resources		Relationship of Short-Term Use of Environment to Long-Term Productivity
Irreversible	Irretrievable	
No	Yes	Increases in erosion would continue until soils were revegetated within 10 to 20 years.
Yes	Yes	Vegetation could be restored to its native condition in 10 to 20 years. Once displaced, small populations of threatened or endangered plants may never be reestablished.
No	Yes	Short-term decreases in local population of waterfowl could result. Losses would continue until removal of the transmission lines. This could continue beyond the life of the generating station depending on the need for the transmission lines.
Yes	Yes	Disturbance or destruction of cultural resources could result in a loss of some scientific understanding. Present salvage techniques do not ensure total information recovery. Once lost, the information could never be regained.
No	Yes	Visual intrusion would remain for the life of the transmission lines.
Yes	Yes	Some loss of prime commercial timber would occur during the life of the project. If the transmission lines were removed, the area would be returned to timber production. Once used by ORVs the new access would likely be kept open indefinitely through continued use. Urban conflicts would continue for the life of the project.

TABLE 2-13 (continued)

Rangely Unit 1 Routing Alternatives
345-138-kV Combined System

Environmental Element (Resource)	Unavoidable Adverse Impacts		
	Rangely-Tank Hollow		
	via Upalco-Fruitland	via Upalco-Sowers Canyon	via Castle Peak-Sowers Canyon
Soils	Route would cross 45 miles of severe erosion hazard soils. Erosion would be localized on disturbed areas and no impacts on other resources are expected. Complete revegetation and stabilization of soils could take 10 to 20 years. Twelve miles of highly unstable steep mountainous terrain exists in this 45-mile area. Construction activities in this terrain would create extensive surface disturbance along the corridor and access roads. It is possible that instability and slope failure would be induced by construction along this route.	Route would cross 57 miles of severe erosion hazard soils. Erosion would be localized on disturbed areas and no impacts on other resources are expected. Complete revegetation and stabilization of soils could take 10 to 20 years.	Route would cross 57 miles of severe erosion hazard soils. Erosion would be localized on disturbed areas and no impacts on other resources are expected Complete revegetation and stabilization of soils could take 10 to 20 years.
Vegetation	9.5 miles of threatened or endangered species habitat would be crossed by this route. Even with federally required measures, it is possible that individual plants of the species could be destroyed. The continued existence of the species would not be jeopardized.	19.5 miles of threatened or endangered species habitat would be crossed by this route. Even with federally required measures, it is possible that individual plants of the species could be destroyed. The continued existence of the species would not be jeopardized.	43.5 miles of threatened or endangered species habitat would be crossed by this route. Even with federally required measures, it is possible that individual plants of the species could be destroyed. The continued existence of the species would not be jeopardized.
Animal Life	There would be a small but unquantifiable loss of waterfowl (4.9 miles of flyway) and other birds from collisions with powerlines and towers. There would be an increase in illegal shooting loss of raptors and big game from new access provided by access roads.	There would be a small but unquantifiable loss of waterfowl (3.9 miles of flyway) and other birds from collisions with powerlines and towers. There would be an increase in illegal shooting loss of raptors and big game from new access provided by access roads.	There would be a small but unquantifiable loss of waterfowl (24 miles of flyway) and other birds from collisions with powerlines and towers. There would be an increase in illegal shooting loss of raptors and big game from new access provided by access roads.
Cultural Resources	Construction could damage two sites one of which may be eligible for nomination to the National Register.	Construction could damage two sites one of which may be eligible for nomination to the National Register.	Construction could damage one site It is not eligible for nomination to the National Register.
Visual Resources and Recreation	The transmission lines would introduce a medium to high increment in contrast at crossings over 9 highways having a total ADT of 9,890. Aesthetic values would be reduced. The line would not meet VRM objectives for 16.5 miles of VRM Class II area. Visitors could be distracted from their recreational pursuits by the presence of new transmission lines. The transmission line would be visible from four recreation attraction areas having special values.	The transmission lines would introduce a low to medium increment in contrast at crossings over 9 highways having a total ADT of 13,520. Aesthetic values would be reduced. Visitors could be distracted from their recreational pursuits by the presence of new transmission lines. The transmission line would be visible from one recreation attraction area and a summer home area having special values.	The transmission lines would introduce a medium to high increment in contrast at crossings over 6 highways having a total ADT of 9,095. Aesthetic values would be reduced. The line would not meet VRM objectives for 3.5 miles of VRM Class II area. The transmission lines would be visible from a summer home area having special values.
Land Use	New access into USFS off-road vehicle closure areas would lead to an increase in ORV use.	No issue identified.	This route would cross 4 miles of urban area and could conflict with future expansions.

TABLE 2-13 (continued)

	Commitment of Resources		Relationship of Short-Term Use of
Via Castle Peak-Fruitland	Irreversible	Irretrievable	Environment to Long-Term Productivity
Route would cross 45 miles of severe erosion hazard soils. Erosion would be localized on disturbed areas and no impacts on other resources are expected. Complete revegetation and stabilization of soils could take 10 to 20 years.	No	Yes	Increases in erosion would continue until soils were revegetated within 10 to 20 years.
58 miles of threatened or endangered species habitat would be crossed by this route. Even with federally required measures, it is possible that individual plants of the species could be destroyed. The continued existence of the species would not be jeopardized.	Yes	Yes	Vegetation could be restored to its native condition in 10 to 20 years. Once displaced, small populations of threatened or endangered plants may never be reestablished.
There would be a small but unquantifiable loss of waterfowl (28 miles of flyway) and other birds from collisions with powerlines and towers. There would be an increase in illegal shooting loss of raptors and big game from new access provided by access roads.	No	Yes	Short-term decreases in local populations of waterfowl could result. Losses would continue until removal of the transmission lines. This could continue beyond the life of the generating station depending on the need for the transmission lines.
Construction could damage one site. It is not eligible for nomination to the National Register.	Yes	Yes	Disturbance or destruction of cultural resources could result in a loss of some scientific understanding. Present salvage techniques do not ensure total information recovery. Once lost, the information could never be regained.
The transmission lines would introduce a medium to high increment in contrast at crossings over 4 highways having a total ADT of 4,765. Aesthetic values would be reduced. The line would not meet VRM objectives for 9.5 miles of VRM Class II area. Visitors could be distracted from their recreational pursuits by the presence of new transmission lines. The transmission line would be visible from two recreation attraction areas having special values.	No	Yes	Visual intrusion would remain for the life of the transmission lines.
New access into USFS off-road vehicle closure areas would lead to an increase in ORV use. This route would cross 4 miles of urban area and could conflict with future expansion.	Yes	Yes	Once used by ORVs the new access would likely be kept open indefinitely through continued use. Urban conflicts would continue for the life of the project. The result could be cumulative with long-term adverse impacts to soil.

TABLE 2-13 (continued)

Rangely Unit 1 Routing Alternatives
Rangely to Vernal and Rangely to SW Rangely Substation
Bonanza to Vernal and Bonanza to Rangely
138-kV System

Environmental Element (Resource)	Unavoidable Adverse Impacts	
	Rangely-Vernal	Rangely to SW Rangely Substation
Vegetation	2 miles of threatened or endangered species habitat would be crossed by this route. Even with federally required measures, it is possible that individual plants of the species could be destroyed. The continued existence of the species would not be jeopardized.	No issue identified.
Animal Life	There would be a small but unquantifiable loss of waterfowl (1 mile of flyway) and other birds from collisions with powerlines and towers. There would be an increase in illegal shooting loss of raptors and big game from new access provided by access roads.	There would be a small but unquantifiable loss of waterfowl (9 miles of flyway) and other birds from collisions with powerlines and towers. There would be an increase in illegal shooting loss of raptors and big game from new access provided by access roads.
Cultural Resources	Construction could damage 3 sites, 2 of which may be eligible for nomination to the National Register.	No sites have been identified along this route.
Visual Resources and Recreation	The transmission lines would introduce a medium to high increment in contrast at crossings over 3 highways having an unknown total ADT. Aesthetic values would be reduced.	The transmission lines would introduce a medium to high increment in contrast at crossings over 2 highways with a total ADT of 1,680. Aesthetic values would be reduced.
Land Use	No issue identified.	This route would cross 2 miles of urban area and could conflict with future expansion.

TABLE 2-13 (continued)

Commitment of Resources		Relationship of Short-Term Use of Environment to Long-Term Productivity
Irreversible	Irretrievable	
Yes	Yes	Once displaced, small populations of threatened or endangered plants may never be reestablished.
No	Yes	Short-term decreases in local population of waterfowl could result. Losses would continue until removal of the transmission lines. This could continue beyond the life of the generating station depending on the need for the transmission lines.
Yes	Yes	Disturbance or destruction of cultural resources could result in a loss of some scientific understanding. Present salvage techniques do not ensure total information recovery. Once lost, the information could never be regained.
No	Yes	Visual intrusion would remain for the life of the transmission lines.
No	Yes	Conflicts would continue for the life of the transmission lines.

TABLE 2-13 (continued)

Rangely Unit 2 Routing Alternatives
Rangely to Mountain Green - 345-kV System

Environmental Element (Resource)	Unavoidable Adverse Impacts		
	via Lone Tree	via Upalco-Fruitland	via Castle Peak-Fruitland
Soils	Route would cross 103.5 miles of severe erosion hazard soils. Erosion would be localized on disturbed areas and no impacts on other resources are expected. Complete revegetation and stabilization of soils could take 10 to 20 years.	Route would cross 62 miles of severe erosion hazard soils. Erosion would be localized on disturbed areas and no impacts on other resources are expected. Complete revegetation and stabilization of soils could take 10 to 20 years.	Route would cross 62 miles of severe erosion hazard soils. Erosion would be localized on disturbed areas and no impacts on other resources are expected. Complete revegetation and stabilization of soils could take 10 to 20 years.
Vegetation	12 miles of threatened or endangered species habitat would be crossed by this route. Even with federally required measures, it is possible that individual plants of the species could be destroyed. The continued existence of the species would not be jeopardized. 12 miles of wet meadow marsh could be crossed. This vegetation type is fragile and of special management concern.	8.5 miles of threatened or endangered species habitat would be crossed by this route. Even with federally required measures, it is possible that individual plants of the species could be destroyed. The continued existence of the species would not be jeopardized.	38.5 miles of threatened or endangered species habitat would be crossed by this route. Even with federally required measures, it is possible that individual plants of the species could be destroyed. The continued existence of the species would not be jeopardized.
Animal Life	There would be a small but unquantifiable loss of waterfowl (27 miles of flyway) and other birds from collisions with powerlines and towers. There would be an increase in illegal shooting loss of raptors and big game from new access provided by access roads.	There would be a small but unquantifiable loss of waterfowl (19.4 miles of flyway) and other birds from collisions with powerlines and towers. There would be an increase in illegal shooting loss of raptors and big game from new access provided by access roads.	There would be a small but unquantifiable loss of waterfowl (37.5 miles of flyway) and other birds from collisions with powerlines and towers. There would be an increase in illegal shooting loss of raptors and big game from new access provided by access roads.
Cultural Resources	Construction could damage 3 sites, 1 of which has been nominated to the National Register: The Old Carter Military Road would be paralleled and crossed for 15 miles.	Construction could damage 3 sites, 2 of of which may be eligible for nomination to the National Register.	Construction could damage 1 site, which is not eligible for nomination to the National Register.
Visual Resources and Recreation	The transmission lines would introduce a medium to high increment in contrast at crossings over 6 highways having a total ADT of 13,005. Aesthetic values would be reduced. The line would not meet VRM objectives for 24 miles of VRM Class II area. Visitors could be distracted from their recreational pursuits by the presence of new transmission lines. The transmission line would be visible from six recreation attraction areas having special values. Segment 35 would be within 1 mile of the proposed High Uintas Wilderness Area eastern boundary, and because of the open vistas of this elevation, would be visible from within the proposed wilderness area.	The transmission lines would introduce a medium to high increment in contrast at crossings over 13 highways having a total ADT of 11,780. Aesthetic values would be reduced. The line would not meet VRM objectives for 14.5 miles of VRM Class II area. Visitors could be distracted from their recreational pursuits by the presence of new transmission lines. The transmission line would be visible from five recreation attraction areas having special values.	The transmission lines would introduce a medium to high increment in contrast at crossings over 13 highways having a total ADT of 11,780. Aesthetic values would be reduced. The line would not meet VRM objectives for 5.5 miles of VRM Class II area. Visitors could be distracted from their recreational pursuits by the presence of new transmission lines. The transmission line would be visible from three recreation attraction areas having special values.
Land Use	A loss of prime commercial timber would occur along Segment 35 in Ashley National Forest. New access into USFS off-road vehicle closure areas would lend to an increase in ORV use. This route would cross 6 miles of urban area and could conflict with future expansions.	No issue identified.	New access into USFS off-road vehicle closure areas would lead to an increase in ORV use. This route would cross 4 miles of urban area and could conflict with future expansion.

TABLE 2-13 (continued)

Commitment of Resources		Relationship of Short-Term Use of Environment to Long-Term Productivity
Irreversible	Irretrievable	
No	Yes	Increases in erosion would continue until soils were revegetated within 10 to 20 years.
Yes	Yes	Once displaced, small populations of threatened or endangered plants may never be reestablished.
No	Yes	Short-term decreases in local population of waterfowl could result. Losses would continue until removal of the transmission lines. This could continue beyond the life of the generating station depending on the need for the transmission lines.
Yes	Yes	Disturbance or destruction of cultural resources could result in a loss of some scientific understanding. Present salvage techniques do not ensure total information recovery. Once lost, the information could never be regained.
No	Yes	Visual intrusion would remain for the life of the transmission lines.
Yes	Yes	Some loss of prime commercial timber would occur during the life of the project. If the transmission lines were removed, the area would be returned to timber production. Conflicts would exist for the life of the transmission lines. Once used by ORVs the new access would likely be kept open indefinitely through continued use. Urban conflicts would continue for the life of the project.

TABLE 2-13 (concluded)

Bonanza or Rangely Unit 2 Routing Alternatives
345-kV System

Environmental Element (Resource)	Unavoidable Adverse Impacts	
	Mountain Green-Ben Lomond	Mona-Ben Lomond
Soils	Route would cross 2 miles of severe erosion hazard soils. Erosion would be localized on disturbed areas and no impacts on other resources are expected. Complete revegetation and stabilization of soils could take 10 to 20 years.	Route would cross 14 miles of severe erosion hazard soils. Erosion would be localized on disturbed areas and no impacts on other resources are expected Complete revegetation and stabilization of soils could take 10 to 20 years.
Vegetation	No issued identified.	10.5 miles of marshland that are of special management concern would be crossed by transmission lines.
Animal Life	There would be a small but unquantifiable loss of birds from collisions with powerlines and towers. There would be an increase in illegal shooting loss of raptors and big game from new access provided by access roads.	There would be a small but unquantifiable loss of waterfowl (15 miles of flyway) and other birds from collisions with powerlines and towers. There would be an increase in illegal shooting loss of raptors and big game from new access provided by access roads.
Cultural Resources	No sites have been identified along this route.	No sites have been identified along this route.
Visual Resources and Recreation	The transmission lines would introduce a medium to high increment in contrast at crossings over 2 highways having a total ADT of 11,260. Aesthetic values would be reduced. The line would not meet VRM objectives for 3 miles of VRM Class II area.	The transmission lines would introduce a medium to high increment in contrast at crossings over 19 highways having a total ADT of 125,395. Aesthetic values would be reduced.
Land Use	This route would cross 19 miles of urban area and could conflict with future expansion.	This route would cross 43.7 miles of urban area and could conflict with future expansion.

TABLE 2-13 (concluded)

Commitment of Resources		Relationship of Short-Term Use of Environment to Long-Term Productivity
Irreversible	Irretrievable	
No	Yes	Increases in erosion would continue until soils were revegetated within 10 to 20 years.
No	Yes	Vegetation could be restored to its native condition in 10 to 20 years.
No	Yes	Short-term decreases in local populations of waterfowl could result. Losses would continue until removal of the transmission lines. This could continue beyond the life of the generating station depending on the need for the transmission lines.
Yes	Yes	Disturbance or destruction of cultural resources could result in a loss of some scientific understanding. Present salvage techniques do not ensure total information recovery. Once lost, the information could never be regained.
No	Yes	Visual intrusion would remain for the life of the transmission lines.
No	Yes	Conflicts would exist for the life of the transmission line.

CHAPTER 3
AFFECTED ENVIRONMENT

INTRODUCTION

This chapter describes only the "significantly" affected environment including areas of controversy, high public interest, or resources covered by law. No attempt at encyclopedic description of the "existing environment" has been made.

This chapter is divided into three major sections: plant site and raw material supply systems, the secondary influence zone, and transmission systems.

The affected environment along linear facilities (i.e., coal transport routes, water pipelines, and transmission system alternative routes) is shown in the environmental profiles (figures 3-8 through 3-23 in the Draft EIS).

PLANT SITE AND RAW MATERIAL SUPPLY SYSTEMS

CLIMATE AND AIR QUALITY

CLIMATE

The Uinta Basin is located in a semi-arid continental climatic regime, characterized by meager precipitation (approximately 8 to 10 inches per year), extreme evaporation, cold and dry winters, and hot and dry summers (U.S. Dept. of Agriculture [USDA], 1978; Hidore, 1972). Precipitation is greatest in spring and early fall. Clear skies prevail most of the year, with strong insolation during the day and rapid nocturnal cooling resulting in wide daily temperature ranges (National Oceanic and Atmospheric Administration [NOAA], 1974). During the night, cold air drainage from higher elevations surrounding the Uinta Basin results in a high frequency of inversions and fog, especially during the winter months. The average winter temperature near Rangely is about 29° F and the average summer temperature is about 68° F. The average frost-free season is about 110 days.

AIR QUALITY

National Ambient Air Quality Standards (NAAQS) established for protection of human health and public welfare (protection of vegetation, animals, and property) are shown in table 3-1. Also shown in table 3-1 are particulate, sulfur dioxide (SO_2), and nitrogen dioxide (NO_2) concentrations measured during 1978 near Vernal by the State of Utah and ozone concentrations monitored near the Ua and Ub oil shale tracts south of Bonanza, Utah. No monitoring of trace elements has been done. Sulfur dioxide concentrations were far below the standards. Particulate concentrations, which were within standards, consisted largely of suspended soil particles. Nitrogen dioxide concentrations were well below the NAAQS. Ozone concentrations have approached the NAAQS (table 3-1), but it is expected that the ozone originated from natural rather than human-related sources, possibly from subsidence of stratospheric ozone. Lead, hydrocarbons, and carbon monoxide have not been monitored in the region. Because these pollutants are emitted primarily from

TABLE 3-1

Comparison of NAAQS and Pollutant Concentrations Measured Near the Sites for 1978

Pollutant	NAAQS ($\mu g/m^3$)[a]	Present Concentrations	Present Percent of NAAQS
Sulfur Dioxide (SO_2)			
Annual	80	0	0
24-hour	365	27	7
3-hour	1,300	27	2
Total Suspended Particulates (TSP)			
Annual	60	31	52
24-hour	150	105	70
Nitrogen Dioxide (NO_2)			
Annual	100	18	18
Lead			
Annual	1.5	--[b]	--
Ozone (O_3)			
1-hour	235	190[c]	79
Hydrocarbons			
3-hour	160	--[b]	--
Carbon Monoxide (CO)			
8-hour	10,000	--[b]	--
1-hour	40,000	--[b]	--

Source: Utah Bureau of Air Quality, 1979 and Aerovironment, 1977.

[a] Micrograms per cubic meter.

[b] Has not been monitored in the region; concentrations are expected to be low.

[c] Recorded at Utah oil shale tracts in 1975 by Aerovironment.

vehicles and are generally urban pollutants, concentrations are expected to be low. On site particulate data collected at the Deserado Mine over an 8-month period starting in January 1980 shows a maximum 24-hour value of 82 $\mu g/m^3$ and an 8-month average of about 24 $\mu g/m^3$ (OSM, 1981).

Both the Bonanza and Rangely sites are located in a Prevention of Significant Deterioration (PSD) Class II area. Class II areas allow air quality deterioration associated with moderate, well controlled growth. The closest point in Dinosaur National Monument (Dinosaur) is the headquarters located 20 miles northeast of the Bonanza site and 17 miles west-northwest of the Rangely site. Dinosaur has been identified by the Secretary of the Interior as an area where air quality related values are important attributes (Federal Register, June 25, 1980). The State of Colorado has designated the portions of Dinosaur within Colorado as Colorado Category I for SO_2, which carries the same incremental limitations on increased SO_2 concentrations as Federal Class I areas. Class I areas are those in which practically any air quality deterioration would be considered significant.

The National Park Service (NPS) has been monitoring visibility at Dinosaur using telephotometers since 1978. The limited data available give mean visual ranges of about 120 miles during summer 1978, 105 miles during spring 1979, and 110 miles during summer 1979 (USDI, NPS, 1980).

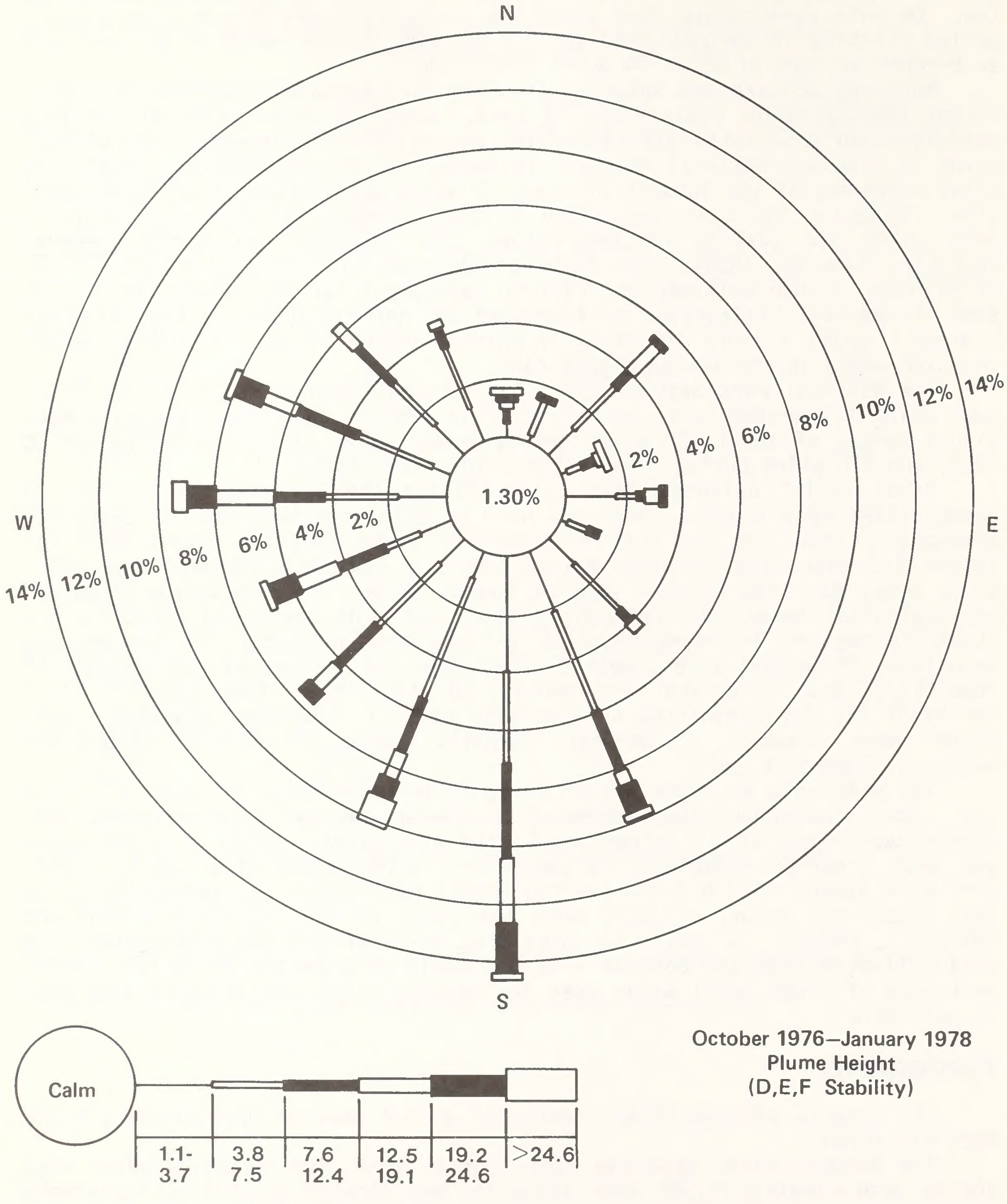
Pibal (pilot balloon) data collected for the Environmental Protection Agency (EPA) near Bonanza, Utah was used by Burns and McDonnell to determine atmospheric stability and wind direction at plume height. Pibals were released 1/2 hour after sunrise and at 2:00 p.m. Mountain Standard Time (MST) every other day from October 1976 to January 1978. This was during anomalous meteorological conditions (drought period) and wind speed and direction and stability may not be representative of long-term averages. Of the morning soundings, 14 percent were stable (F stability), 51 percent slightly stable (E stability), and 35 percent were neutral (D stability). (See Appendix 13 of the Draft EIS for definition of stability class.) Afternoon stability categories were: neutral, 85 percent; slightly stable, 13 percent; stable and unstable, 1 percent each.

The wind rose at plume height based on the pibal data is shown in figure 3-1. The directions south-southeast clockwise through west-northwest comprised two-thirds of all plume level wind directions. Winds from the north and east occurred relatively infrequently. Wind speeds were mostly light, with wind speeds of 7.5 miles per hour (mph) (3.3 meters per second [m/s]) or less occurring during slightly more than half of the soundings (Burns and McDonnell, 1980a). It should be noted that the wind rose was constructed from data collected near the Bonanza site and would be expected to be less representative of plume level winds near the Rangely site. No reliable wind data is available.

TOPOGRAPHY

The Bonanza site would be located on a flat area at approximately 5,000 feet elevation.

The Rangely site, Deserado Mine, portal area, and refuse disposal area are at approximately 5,500 feet elevation and located on rolling topography dissected by washes. The area over the mine and at the railroad coal loadout and storage area is composed of rolling topography.



October 1976—January 1978
Plume Height
(D,E,F Stability)

FIGURE 3-1

16 MONTH WIND ROSE U-A/U-B TRACT

GEOLOGY AND PALEONTOLOGY

The plant site and raw material supply systems lie within a low seismic risk zone. Hydrocarbons in a number of different forms are found throughout the Uinta Basin. Deposits of oil shale, petroleum, and natural gas are located under the Bonanza site (Rogers and Campbell, 1977). There are no known oil or gas reserves under the Rangely site.

Underlying the Rangely site, Deserado Mine refuse disposal area, and railroad coal storage and loadout area, nine coal seams have been identified in the lower 200 to 300 feet of the Williams Fork formation (see figure 2-11 of the Draft EIS). The lithology of the coal-bearing zone is predominantly siltstone, shale, carbonaceous shale and coal interbedded with thin, discontinuous, often calcareous sandstone. The Williams Fork formation has a low probability of important fossil occurrence.

The geologic formations that would be encountered and the probability of important fossil occurrence in each are shown in table 3-2. Fossils (vertebrate, invertebrate and/or plant) important to science and industry are found in these formations.

SOILS

The soil associations at the plant sites and raw material supply system areas are typical of the arid and semiarid climates of the Uinta Basin in Utah and western Colorado.

The soils at the Bonanza site are relatively unproductive, shallow, well-drained, with moderate to slow permeability. Runoff is rapid and erosion potential is high. Productive top soil is relatively scarce and vegetation cover is difficult to reestablish.

The Rangely site and Deserado Mine area (including the refuse disposal area and railroad loadout and coal storage area) have soils that are more productive and support more vegetation than the Bonanza site. The soils are mostly loams with some rock outcrops. Soil depths vary from 0-60 inches. However, there is enough material to replace a layer of 12-18 inches over most of the affected area. Soils in the area were found to be high in selenium content (over 2 ppm but less than 5 ppm) at various levels. These soils are reclamable. Native fertility is moderate and the physical characteristics are good. These soils exhibit slow permeability, low water holding capacity, rapid surface runoff, and high erosion potential.

WATER RESOURCES

SURFACE WATER

Green River

The flow regime of the Green River is largely regulated by the Flaming Gorge Reservoir. Near Jensen, Utah, the Green River has an average annual flow of 3,156,000 acre-feet/year (4,356 cubic feet per second [cfs]) (USDI, USGS, 1980). The lowest annual flow since the filling of Flaming Gorge Reservoir was 2,148,000 acre-feet/year (2,966 cfs) in 1977. The river is rejuvenated by snowmelt, and high flows occur in late spring averaging 15,000 cfs in June. Low flows in fall and winter average 3,000 cfs.

The chemical constituents that contribute to the salinity of water are measured as total dissolved solids (TDS) (Bentley et al., 1978). Historical,

TABLE 3-2

Paleontological Importance of Geologic Formations on Power Plant and Raw Material Supply System Alternative Sites[a]

	Geologic Formations											
	Uinta											
Project Components	A (L)	B (M)	C (M)	Alluvium (L)	Wasatch (L)	Mesa Verde Group (M)	Mancos Shale (L)	Green River (M)	Duchesne River (M)	Gravel Surface (L)	Morrison (H)	Sego Sandstone, Buck Tongue of Manco Shale, and Castlegate Sandstone (M)
Plant Site Alternatives												
Bonanza Site	--	--	--	1,840 ac.	--	--	--	--	--	--	--	--
Rangely Site	--	--	--	--	1,152 ac.	1,050 ac.	--	--	--	--	--	--
Coal Supply Alternatives												
Deserado Mine Portal Area	--	--	--	--	--	100 ac.	--	--	--	--	--	--
Refuse Disposal Area	--	--	--	--	--	609 ac.	--	--	--	--	--	--
Coal Transportation Alternatives												
Bonanza Alternative												
Electric Railroad												
Railroad Mainline	--	6 mi	--	9 mi.	--	9 mi.	1 mi.	--	1 mi.	--	--	9 mi.
Coal Storage and Loadout Area	--	--	--	--	--	280 ac.	--	--	--	--	--	--
Coal Delivery Conveyor	--	--	--	--	--	3 mi.	--	--	--	--	--	--
Overland Conveyor	--	15 mi	--	1 mi.	3 mi.	7 mi.	5 mi.	1 mi.	--	--	--	--
Slurry Pipeline	--	15 mi	--	1 mi.	3 mi.	7 mi.	5 mi.	1 mi.	--	--	--	--
Off-Highway Truck	15 mi.	--	--	--	1 mi	--	--	1 mi.	--	--	--	--
Rangely Alternative												
Overland Conveyor	--	--	--	--	--	3 mi.	--	--	--	--	--	--
Off-Highway Truck	--	--	--	--	--	4 mi.	--	--	--	--	--	--
Water Source and Transport Alternatives												
Bonanza Alternative												
Green River Collection Well System and Pipeline	--	9 mi	3 mi	2 mi.	--	--	--	--	5 mi.	--	--	--
Utah White River Reservoir Pipeline	9 mi.	--	--	--	--	--	--	--	--	--	--	--
Rangely Alternatives												
Green River Collection Well System and Pipeline	--	--	--	2 mi.	1 mi.	10 mi.	12 mi.	--	--	9 mi.	1 mi.	5 mi.
Taylor Draw Reservoir	--	--	--	569 ac.	--	--	--	--	--	--	--	--
Taylor Draw Reservoir Pipeline	--	--	--	--	--	5 mi.	--	--	--	--	--	--
Wolf Creek Reservoir	--	--	--	1,808	--	--	--	--	--	--	--	--
Wolf Creek Reservoir Pipeline	--	--	--	--	4 mi.	3 mi.	--	--	--	--	--	1 mi.

---

[a] See Appendix 14 for further definition of importance ratings.

H = High probability of important fossil occurrence.
High: High number of high value fossils.

M = Moderate probability of important fossil occurrence.
Moderate: 1) Important fossils known from other sites in the formation.
2) Lack of data on which to base a rating.
3) Fossils scarce but important when found.

L = Low probability of important fossil occurrence.
Low: Low number of low value fossils.

1976, and projected year 2000 salinity conditions of the Green River at Green River, Utah are shown in table 3-3. These conditions are rated as slightly saline, according to the salinity classes outlined by Bentley et al. (1978).

Water temperatures of the Green River near Jensen, Utah range from 33.8° Farenheit (F) (1° Centigrade [C]) to 69.8° F (21° C) and pH values range from 7.7 to 8.4.

White River

The White River near Watson, Utah has an average annual flow of 502,800 acre-feet/year (694 cfs). The lowest annual flow over a 55-year period was 223,200 acre-feet/year (308 cfs) in 1977. Late spring high flows range from 3,000 to 4,000 cfs and fall/winter low flows usually range from 200 to 350 cfs. The lowest recorded flow at the Utah-Colorado state line was 11 cfs in 1977 (Hansen, 1980c).

Approximately 37,000 acre-feet (51 cfs) of water are used consumptively each year for agricultural irrigation in the upper White River basin (Colorado Dept. of Natural Resources, 1979).

The historical and 1976 salinity condition of the White River near Watson are both slightly saline (445 milligrams per liter [mg/ℓ]).

Water temperatures near Watson range from 32.9° F (0.5° C) to 74.3° F (23.5° C) and pH values range from 7.3 to 8.5.

GROUND WATER

Bonanza Site

The quantity and quality of ground water near the Bonanza site are known mainly from data collected from oil wells. However, subsurface investigations conducted at the Bonanza site have revealed that only small quantities of water are in storage in the unconfined alluvium of Coyote and Kennedy Washes.

The Duchesne River (Tertiary) and Uinta (Cretaceous) formations, on which the Bonanza site partially lies, are relatively fine-grained, which inhibit the movement of water. Although some ground water may move through fractures in the sandstone, shales, and conglomerates of these formations, several vertical gilsonite seams retard ground water movement. Ground water in deeper-depth consolidated rocks is mainly brine, as is being produced in the Red Wash oil field.

In general, salinity of ground water sampled near the Utah oil shale tracts south of the Bonanza site ranged from 1,760 mg/ℓ to 4,030 mg/ℓ. The plant site is in the general vicinity of ground water supplies which have TDS concentrations greater than 3,000 mg/ℓ (Utah Department of Natural Resources, 1978). Concentrations above 2,000 mg/ℓ are considered to be highly saline (Bentley et al., 1978).

Rangely Site and Deserado Mine Area

The ground water resources of the White River basin near the Rangely site and Deserado Mine area are largely untapped at the present time. Consequently, there is a lack of knowledge concerning the extent and quality of ground water aquifers and ground/surface water relationships (Colorado Department of Natural Resources, 1979).

Aquifer testing was attempted on three test wells and selected observation wells at the Deserado Mine coal lease area (Hansen, 1979a). The results showed large drawdowns were obtained with very low pumping rates. Transmissivity within the sandstone is very low (3.8 to 74 gpd/ft). Only one test

TABLE 3-3

Salinity Conditions of the Green River
at Green River, Utah

Historical Level (mg/ℓ)[a]	1976 level (mg/ℓ)	Projected 1986 Level (mg/ℓ)	Projected 2000 Level (mg/ℓ)
457	464	512	519

Source: USDI, Water and Power Resources Service, 1979.

Note: These estimates do not include the Moon Lake project but give a baseline for impact analysis.

[a] Historic refers to the long-term average in general covering a period from 1941 to 1976. Where records for the entire period are not available, missing data were estimated by correlation with other sampling stations.

gave a specific capacity in excess of one gallon per minute per foot of drawdown, the general lower limit of a low capacity well. TDS values ranged from 66 mg/ℓ up to 7,110 mg/ℓ with about 2/3 of the samples over 1,000 mg/ℓ and only one less than 400 mg/ℓ.

These studies all indicate that the ground water quantity is low and quality is poor.

The coal zone in the proposed Deserado Mine area is positioned between two sandstone formations, both of which contain tightly held ground water. These formations are not aquifers in the traditional sense of the word, because the ratio of available water to the amount that could be withdrawn is low.

The only surface water supplied by ground water in the area of potential impact is Cactus Reservoir. A water quality sample collected from Cactus Reservoir on the Rangely site, 1.5 miles east of the Deserado Mine boundary, was of relatively high quality with a TDS concentration of 188 mg/ℓ. At the time the sample was collected, there were no surface inflows or outflows. The high water quality of the reservoir indicates that its supply is not connected with deeper ground water aquifers. The water in the reservoir is likely supplied by a perched aquifer which originates away from the Deserado Mine area on the slopes east of the Rangely plant site.

FLOODPLAINS AND WETLANDS

The only project component alternatives located within the floodplains of the Green and White Rivers are the Green River collection well system, Deserado Mine alluvial wells, and the White River Reservoir alternatives. Within the potential area of impact, the 100-year floodplain has not been defined but is estimated as being 50 feet on each side of the river. No wetlands have been identified in the project areas. Riparian areas are discussed in the Vegetation section. BLM Manual 6740, Wetland-Riparian Area Protection and Management defines and establishes management guidelines for these areas.

VEGETATION

VEGETATION TYPES

The major vegetation types in the potentially affected areas at the Bonanza site are grassland, greasewood, sagebrush-greasewood, shadscale, horsebrush-spiny hopsage, salt bush, budsage, and sand dune associations comprised of rabbitbrush, Indian ricegrass, and Russian thistle. The major vegetation types at the Rangely site are sagebrush, grassland, juniper, sagebrush-grassland, and mountain brush. The major vegetation types at the Deserado Mine and refuse disposal area are juniper, juniper-sagebrush, sagebrush, sagebrush-grassland, grassland, and sagebrush-greasewood. These types are common in the Rocky Mountain West and can generally be collectively referred to as cold desert vegetation. These vegetation types characterize most of the Uinta Basin. Weedy annuals (i.e., African mustard, cheatgrass, plantago, etc.) may contribute from 8 to 45 percent of the vegetation cover (Allan, 1979). Vegetation types along coal transportation and water pipeline routes are shown in the environmental profiles, figures 3-8 through 3-10 in the Draft EIS. Halogeton glomeratus, an introduced noxious weed, and Astragalus pubentissimus, a native "loco" weed, are common throughout the area. The most important vegetation types in the potentially affected areas are: (1) riparian, which is limited in distribution to the streambanks and riverbanks, drainage areas, and banks of ponds; (2) artificially seeded areas that are important to livestock; (3) and a small unique mountain brush community near the Rangely site.

RIPARIAN VEGETATION

Riparian communities located within alternative project sites are generally comprised of big sagebrush, greasewood, cottonwood, salt cedar, and willow. A 3-acre riparian community occurs around Cactus Reservoir on the south end of the Rangely site. Here, cottonwoods and willows line a marsh-bordered open water area. A riparian/greasewood community composed of old cottonwood, willows, reeds, rushes, sedges, grasses, and greasewood is found along the banks of the White River at the Taylor Draw and Wolf Creek Reservoir sites. The acreages within the alternative sites are shown in table 3-4.

ARTIFICIALLY SEEDED AREAS

Approximately 980 acres (38 percent) of the Rangely site is comprised of reseeded crested wheatgrass, western wheatgrass, needle-and-thread grass, bluegrass, cheatgrass, and a variety of annuals. This seeded area produces about 39,200 lbs/year or 40 lbs per acre per year. This represents 49 AUMs or 20 acres per AUM. These values are considered average for BLM rangelands.

UNIQUE VEGETATION TYPES

A unique shrub community (4 acres) is located about 200 yards west of Red Wash along the alternative Rangely site access road. This community is composed of several mountain brush species which indicates a source of moisture, thus placing it in a different moisture regime than the surrounding area. Shrubs such as chokecherry, squawbush, serviceberry, mountain mahogany, wild rose, poison ivy, and Oregon grape are common in the crevices between the rocks. Several small box elder trees also occur here; these are normally streamside canyon trees. A streamside-type grass, *Elymus cinereus*, and a riparian shrub, *Chrysothamnus linifolius*, are also present. This is a unique island-like community in a desert environment.

THREATENED AND ENDANGERED PLANT SPECIES

A total of ten plant species that are candidate (listed in the July 1, 1975 and June 16, 1976 *Federal Registers*) and one officially listed (listed in *Federal Register* on October 11, 1979) are within the areas of the proposed and alternative project sites. (See Appendix 15 of the Draft EIS for current status of threatened and endangered plants.) The Uinta Basin hookless cactus (*Sclerocactus glaucus*), which is officially listed as threatened by the U.S. Fish and Wildlife Service (USFWS), is known to occur in eight sites in western Colorado and eastern Utah. The estimated population is about 15,000 individual plants (USDI, USFWS, 1980). During field investigations of potential project sites by Welsh and Neese (1979), a single plant was found along the Green River to Bonanza site water pipeline route. The main population centers of this species are west of the potential Moon Lake project area (Welsh and Neese, 1979).

The project sites which are known to be habitat for candidate threatened or endangered plant species are the Bonanza site, Rangely site, Green River to Bonanza site water pipeline route, and the Deserado Mine to Bonanza site

Table 3-4

Acreages of Riparian Vegetation on Project Components

Project Component	Bonanza Site Alternative	Rangely Site Alternative
Plant Site	82	80
Coal Supply Alternative		
Deserado Mine Area (including alluvial wells)	40	40
Refuse Disposal Area	80	80
Coal Transportation Alternatives[a]		
Electric Railroad		
Railroad Mainline	50	N/A
Coal Storage and Loadout Area	0	0
Coal Delivery Conveyor	Less than 1	Less than 1
Overland Conveyor	50	0
Slurry Pipeline	50	N/A
Off-highway Truck Haul	40	0
Water Source and Transport Alternatives		
Green River Pipeline[a] (including collection well system)	20	10
Utah White River Reservoir Pipeline[a]	0	N/A
Taylor Draw Reservoir	N/A	50
Taylor Draw Reservoir Pipeline[a]	N/A	Less than 1
Wolf Creek Reservoir[b]	N/A	863
Wolf Creek Reservoir Pipeline[a]	N/A	Less than 1

[a] Assumes 0.25-mile corridor.

[b] Riparian/greasewood association.

railroad, overland coal conveyor and slurry pipeline routes (Welsh and Neese, 1979). The species occurring in these areas and their status are listed in table 3-5. No surveys have been conducted specifically for the Taylor Draw or Wolf Creek Reservoir areas. Any of the species listed in table 3-5 with the exception of Ephedra buckwheat (Eriogonum ephedriodes), Uinta hermidium (Hermidium alpes), and Graham beardtongue (Penstemon grahamii) could potentially be found at either reservoir site.

ANIMAL LIFE

TERESTRIAL SPECIES

Species of concern which are found within the potential impact area and which could be adversely affected are: mule deer, antelope, sage grouse, bald eagles, whooping cranes, golden eagles, wild horses, and raptor species such as the ferruginous hawk, burrowing owl, red-tailed hawk, and great horned owl.

Mule Deer

Mule deer are a big game species found throughout the area of potential impact (see figure 3-2). Deer are yearlong residents in the riparian zones 8 miles south of the Bonanza site area but utilize the area of the plant site very little. In the area of the Rangely site, some deer are yearlong residents and others are migrants which utilize the area primarily during the winter. Utilization of this plant site is minimal. This is also true of the Deserado Mine area where densities range from 0.8 per square mile yearlong to 1.43 per square mile during winter.

Mule deer are present in small numbers yearlong, and in slightly increased numbers (see above) during winter along the railroad, conveyor, slurry pipeline, truck haul, and water pipeline routes. There are three known migration routes in the area as shown in figure 3-2. Approximately 200+ deer are killed annually in vehicle collisions on the 25 miles of Highway 40 between the Utah-Colorado border and Masadona, Colorado, primarily during spring and fall migration seasons (Vidakovich, 1980).

Densities in the Taylor Draw Reservoir area also range from 0.8 per square mile yearlong to 1.43 per square mile during winter. Densities in the Wolf Creek Reservoir area range from 54-80 per square mile during winter. There is a mule deer migration route near the eastern end of the proposed Wolf Creek Reservoir (Gettman, 1980).

Approximately 585 acres of critical mule deer winter range have been identified within the area that could be inundated by the Wolf Creek Reservoir.

Pronghorn Antelope

Pronghorn antelope are big game animals found in the potential impact area in Colorado and Utah. One herd of about 200 to 250 antelope ranges in Utah with a crucial fawning area of approximately 38,000 acres around the Bonanza site. Even though the antelope herd has been in existence 26 years, its population is presently static to declining. Lack of permanent water sources is thought to be a limiting factor for the Bonanza herd. The aerial trend count has fluctuated between 118 to 184 animals with a current figure of 133 (Utah Division of Wildlife Resources [UDWR], 1978). Additional losses from the project and cumulative impacts from other energy projects, added to a

TABLE 3-5

Known Occurrence of Candidate Threatened or Endangered Plants on Project Components

Project Components	Bonanza Site Alternative		Rangely Site Alternative	
Plant Site	ASDU	9 sites	ASDE	2 sites
Coal Transportation Alternatives				
Overland Conveyor and Slurry Pipeline	ASDE	1 sites		0
	ASDU	3		0
	CYDU	1		0
	EREP	2		0
	HEALP	1		0
	PALI	1		0
	PEGR	1		0
Electric Railroad Mainline	EREP	1		N/A
Water Source and Transport Alternative				
Green River Pipelines (including collection well system)	ASDU	2 sites		0
	ASSA	1		0
	CRBR	2		0
	CYDU	1		0
	ERVI	14		0

Note:

	Status	
	Pre Nov. 1979	Post Nov. 1979
ASDE = *Astragalus detritalis*	Threatened	Rec. for delisting
ASDU = *Astragalus duchesnensis*	Threatened	Rec. for delisting
ASSA = *Astragalus saurinus*	Threatened	Threatened
CRBR = *Cryptantha breviflora*	Endangered	Rec. for delisting
CYDU = *Cymopteris duchesnensis*	Threatened	Rec. for delisting
EREP = *Eriogonum ephedroides*	Threatened	Threatened
ERVI = *Eriogonum viridulum*	Threatened	Rec. for delisting
HEALP = *Hermidium alipes* v. *pallidium*	Endangered	Rec. for delisting
PALI = *Parthenium ligulatum*	Threatened	Rec. for delisting
PEGR = *Penstemon grahamii*	Endangered	Endangered

Number of sites potentially affected as shown on field maps by Welsh and Neese, 1979. No survey has been conducted for the Taylor Draw or Wolf Creek Reservoirs. Any of the species listed on this table potentially could grow within the reservoir areas with the exception of EREP, HEALP, and PEGR.

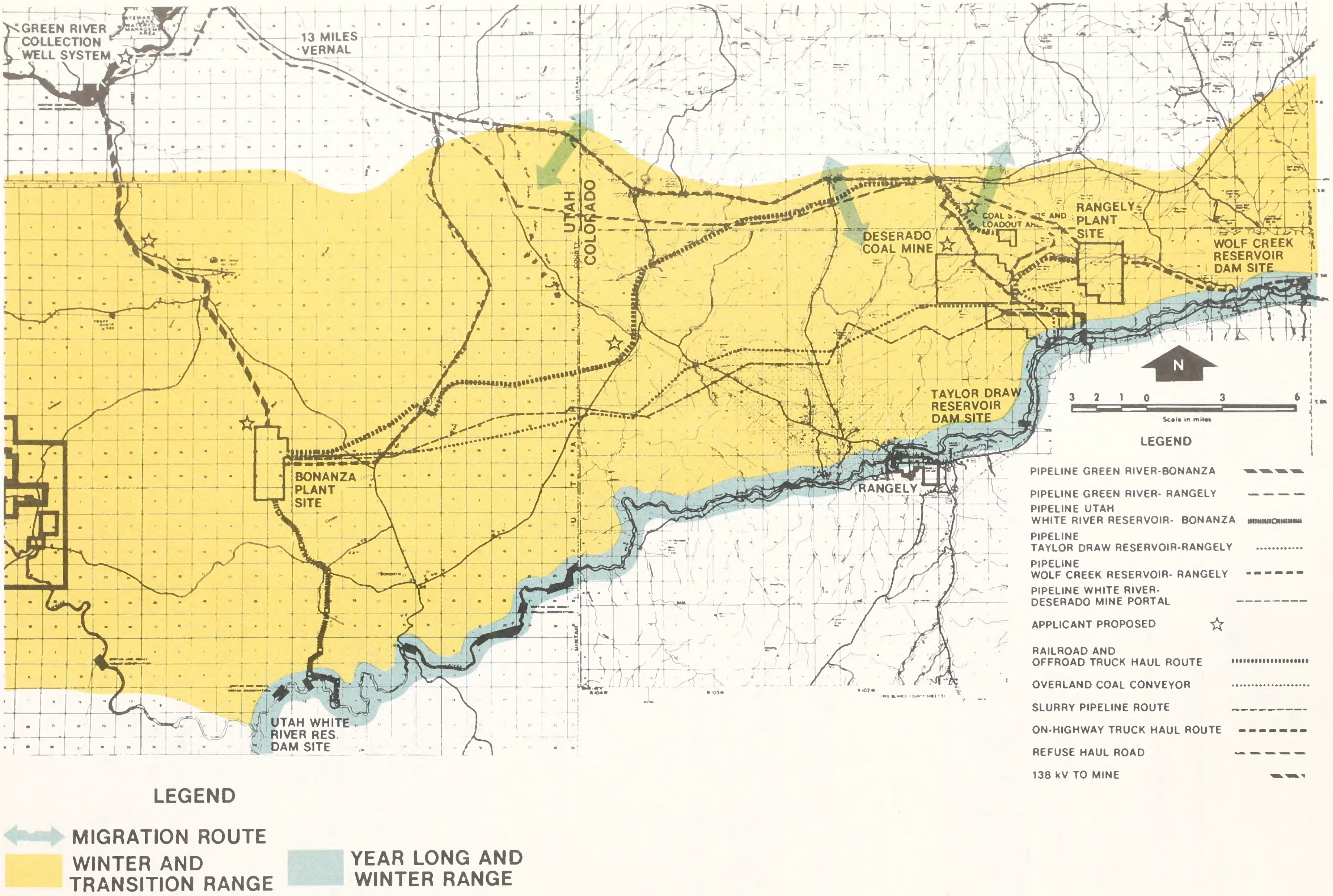

GREEN RIVER COLLECTION WELL SYSTEM
13 MILES VERNAL
UTAH
COLORADO
DESERADO COAL MINE
COAL ... AND LOADOUT AR...
RANGELY PLANT SITE
WOLF CREEK RESERVOIR DAM SITE
TAYLOR DRAW RESERVOIR DAM SITE
RANGELY
BONANZA PLANT SITE
UTAH WHITE RIVER RES. DAM SITE
N
3 2 1 0 3 6
Scale in miles
LEGEND
PIPELINE GREEN RIVER-BONANZA
PIPELINE GREEN RIVER- RANGELY
PIPELINE UTAH WHITE RIVER RESERVOIR- BONANZA
PIPELINE TAYLOR DRAW RESERVOIR-RANGELY
PIPELINE WOLF CREEK RESERVOIR- RANGELY
PIPELINE WHITE RIVER- DESERADO MINE PORTAL
APPLICANT PROPOSED ☆
RAILROAD AND OFFROAD TRUCK HAUL ROUTE
OVERLAND COAL CONVEYOR
SLURRY PIPELINE ROUTE
ON-HIGHWAY TRUCK HAUL ROUTE
REFUSE HAUL ROAD
138 kV TO MINE
LEGEND
MIGRATION ROUTE
WINTER AND TRANSITION RANGE
YEAR LONG AND WINTER RANGE

FIGURE 3-2

MULE DEER HABITAT ON POWER PLANT AND RAW MATERIAL SUPPLY SYSTEM ALTERNATIVE SITES herd which is apparently surviving in a marginal situation, could eliminate the herd. A herd of up to 500 antelope in Colorado migrates during summer months into the vicinity of the Rangely site, the proposed railroad route, coal storage and loadout area, the off-highway truck haul route, the coal refuse disposal area, and the northern portion of the Wolf Creek Reservoir. The relationship of antelope habitat to the power plant and raw material supply system alternative sites is summarized in table 3-6 and is shown in figure 3-3. Cactus Reservoir, an important summer watering source, is located on the Rangely plant site.

Sage Grouse

All plant site and raw material supply system sites are within historic sage grouse range. Presently sage grouse are found primarily in Colorado. Densities of this species in the potentially affected areas of the Deserado Mine average about 2 per hertare. However, sage grouse are known to frequent the areas shown in figure 3-4 and quantified in table 3-7. One of these "concentration" areas is located on the Rangely site. Other concentration areas would be crossed by 4 miles of the proposed Bonanza railroad and off-highway truck haul routes and 4 miles of the Green River to Rangely water pipeline. Sage grouse are also present in the proposed coal mine refuse disposal area which covers 609 acres.

The importance of concentration areas to the survival of sage grouse in areas which could be affected by the project is not documented but, to date no on-site inventories for sage grouse have been conducted and no leks (strutting grounds), which are necessary for sage grouse reproduction, have been identified in the possible impact areas with the exception of three potential leks in the refuse disposal area and additional studies are to be made in the spring 1981.

Raptors

Predatory birds (raptors), including golden eagles, ferruginous hawks, burrowing owls, red-tailed hawks, and great horned owls, are well represented throughout the potential impact areas. All raptors are protected by Federal laws.

Golden eagles are common yearlong residents within the potential impact area of Colorado. Nests which have been active within the past 3 years are also fairly common. One active nest site is located within 0.25 mile of the mine portal area, one on a ledge overlooking the Taylor Draw Reservoir, and another near the site of the Wolf Creek Reservoir (figure 3-4).

Other raptor nests include a ferruginous hawk nest located immediately south of milepost 4 of the Deserado to Bonanza railroad or off-highway truck route and a burrowing owl nest on the Rangely site.

There are also two red-tailed hawk nests within 0.5 mile of the Deserado Mine refuse disposal area and two others are within 0.25 mile of the coal route to the Rangely site. Two great horned owl nest sites have been reported, one 0.5 mile from the mine portal area and one within 0.5 mile of the overland conveyor to the Rangely site.

Threatened and Endangered Species

The Green River including adjacent marshes or water bodies (e.g., Stewart Lake, Ouray National Waterfowl Refuge) is the only major stopping area along

TABLE 3-6

Pronghorn Antelope on Power Plant and Raw Material Supply Systems Alternative Sites

Component	Bonanza Site	Rangely Site
Plant Site	1,840 ac.	2,202 ac.
Coal Supply		
Deserado Mine	--	--
Portal Area	--	--
Refuse Disposal Area	609 ac.	609 ac.
Coal Transport		
Electric Railroad		
Railroad Mainline	--	N/A
Coal Storage and Loadout Area	--	N/A
Coal Delivery Conveyor	--	N/A
Overland Conveyor	11 mi.	--
On-Highway Truck	--	--
Off-Highway Truck	22.5 mi.	--
Slurry Pipeline	11 mi.	1 mi.
Water Source and Transport Alternative		
Green River Pipelines	17 mi.	16 mi.
Utah White River Reservoir Pipeline	7 mi.	N/A
Taylor Draw Reservoir	N/A	--
Taylor Draw Reservoir Pipeline	N/A	--
Wolf Creek Reservoir	N/A	--
Wolf Creek Reservoir Pipeline	N/A	0.4 mi.

TABLE 3-7

Sage Grouse on Power Plant and Raw Material Supply System Alternative Sites

Component	Bonanza Site	Rangely Site
Plant Site	--	2,202 ac.
Coal Supply		
Deserado Mine	--	--
Portal Area	--	--
Refuse Disposal Area	609 ac.	609 ac.
Coal Transport		
Electric Railroad		
Railroad Mainline	4 mi.	N/A
Coal Storage and Loadout Area	--	N/A
Coal Delivery Conveyor	--	N/A
Overland Conveyor	--	--
On-Highway Truck	--	--
Off-Highway Truck	4 mi.	0.5 mi.
Slurry Pipeline	--	N/A
Water Source and Transport Alternative		
Green River Pipelines	--	4 mi.
Utah White River Reservoir Pipeline	--	N/A
Taylor Draw Reservoir	N/A	--
Taylor Draw Reservoir Pipeline	N/A	--
Wolf Creek Reservoir	N/A	--
Wolf Creek Reservoir Pipeline	N/A	0.5 mi.

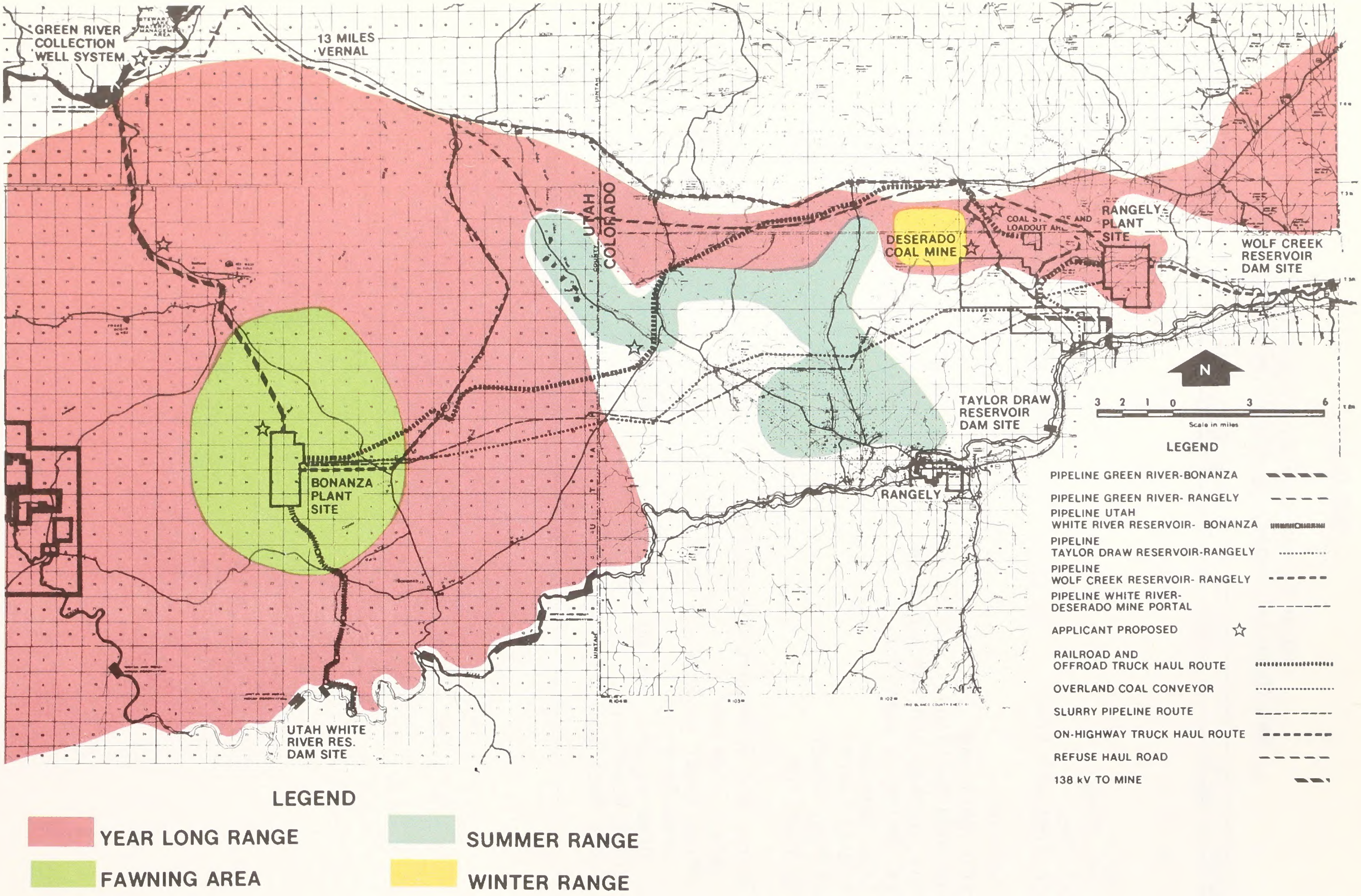

GREEN RIVER COLLECTION WELL SYSTEM
13 MILES VERNAL
UTAH
COLORADO
DESERADO COAL MINE
COAL
LOADOUT
RANGELY PLANT SITE
WOLF CREEK RESERVOIR DAM SITE
TAYLOR DRAW RESERVOIR DAM SITE
RANGELY
BONANZA PLANT SITE
UTAH WHITE RIVER RES. DAM SITE
N
3 2 1 0 3 6
Scale in miles
LEGEND
PIPELINE GREEN RIVER-BONANZA
PIPELINE GREEN RIVER- RANGELY
PIPELINE UTAH WHITE RIVER RESERVOIR- BONANZA
PIPELINE TAYLOR DRAW RESERVOIR-RANGELY
PIPELINE WOLF CREEK RESERVOIR- RANGELY
PIPELINE WHITE RIVER- DESERADO MINE PORTAL
APPLICANT PROPOSED ☆
RAILROAD AND OFFROAD TRUCK HAUL ROUTE
OVERLAND COAL CONVEYOR
SLURRY PIPELINE ROUTE
ON-HIGHWAY TRUCK HAUL ROUTE
REFUSE HAUL ROAD
138 kV TO MINE
LEGEND
YEAR LONG RANGE
FAWNING AREA
SUMMER RANGE
WINTER RANGE

FIGURE 3-3

ANTELOPE HABITAT ON POWER PLANT AND RAW MATERIAL SUPPLY SYSTEM ALTERNATE SITES

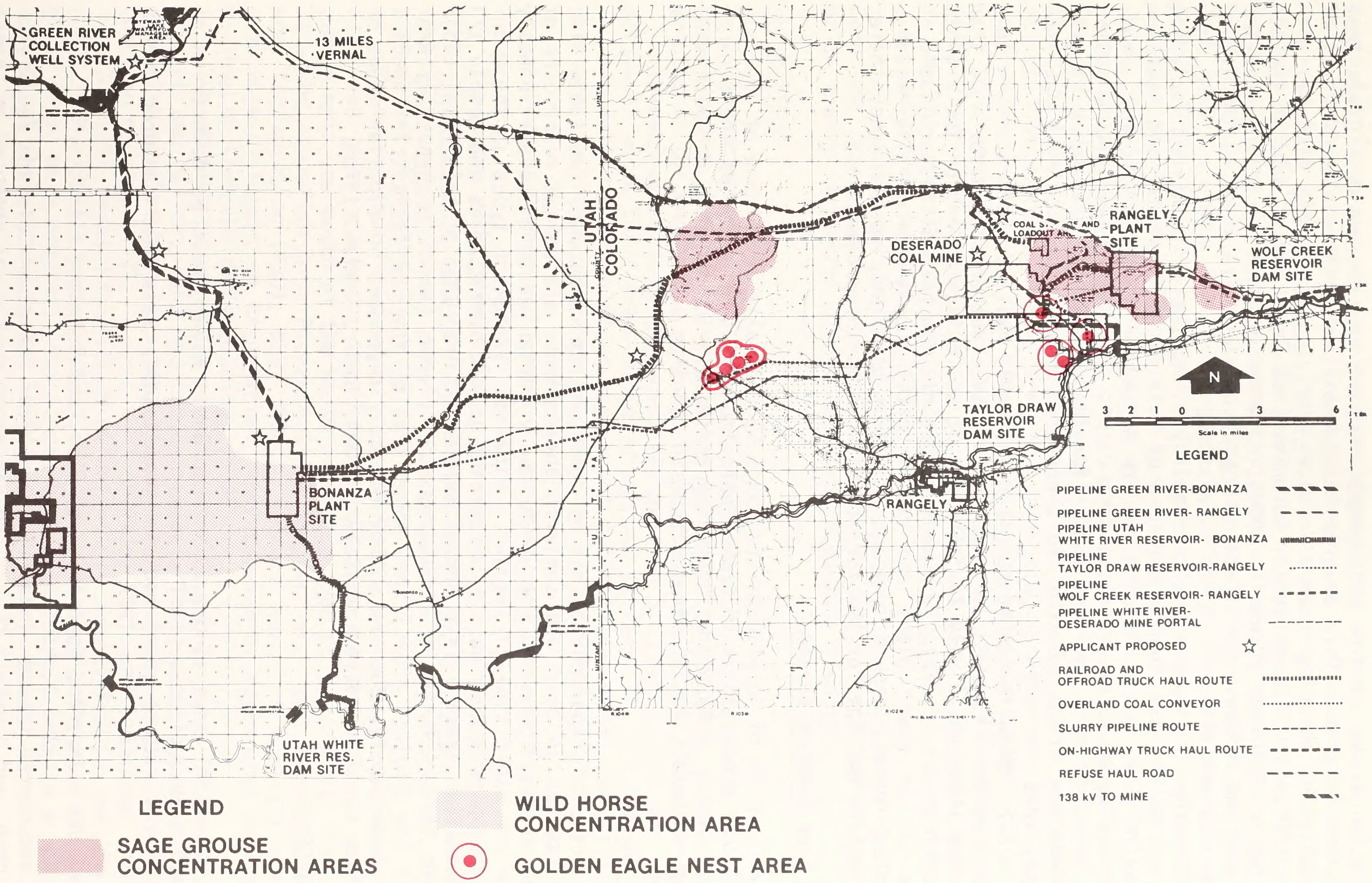

GREEN RIVER COLLECTION WELL SYSTEM
13 MILES VERNAL
UTAH
COLORADO
DESERADO COAL MINE
COAL SITE AND LOADOUT AREA
RANGELY PLANT SITE
WOLF CREEK RESERVOIR DAM SITE
TAYLOR DRAW RESERVOIR DAM SITE
RANGELY
BONANZA PLANT SITE
UTAH WHITE RIVER RES. DAM SITE
N
3 2 1 0 3 6
Scale in miles
LEGEND
PIPELINE GREEN RIVER-BONANZA
PIPELINE GREEN RIVER- RANGELY
PIPELINE UTAH WHITE RIVER RESERVOIR- BONANZA
PIPELINE TAYLOR DRAW RESERVOIR-RANGELY
PIPELINE WOLF CREEK RESERVOIR- RANGELY
PIPELINE WHITE RIVER- DESERADO MINE PORTAL
APPLICANT PROPOSED ☆
RAILROAD AND OFFROAD TRUCK HAUL ROUTE
OVERLAND COAL CONVEYOR
SLURRY PIPELINE ROUTE
ON-HIGHWAY TRUCK HAUL ROUTE
REFUSE HAUL ROAD
138 kV TO MINE
LEGEND
SAGE GROUSE CONCENTRATION AREAS
WILD HORSE CONCENTRATION AREA
GOLDEN EAGLE NEST AREA

FIGURE 3-4

SAGE GROUSE, WILD HORSE AND GOLDEN EAGLE HABITAT ON POWER PLANT AND RAW MATERIAL SUPPLY SYSTEM ALTERNATIVE SITES the migration route of the endangered whooping cranes from the Grays Lake foster parent program. This program has successfully reared a small flock of approximately 20 whooping cranes. Twice yearly, these birds migrate, with their greater sandhill crane foster parents, from Grays Lake, Idaho to the San Luis Valley of Colorado (Drewein, 1980). Their migration route includes the project area but the extent of use (if any) on the White River at the Taylor Draw or Wolf Creek Reservoir sites is unknown.

Bald eagles (endangered) winter mainly along the White River, including roost areas within the inundation area of Wolf Creek Reservoir and near the upper end of the reservoir site. They may range into the project areas. Although considered to be primarily fish eaters and usually seen around water, they are commonly seen far from water, feeding on carrion. Peregrine falcons (endangered) are known to exist in Dinosaur and may occasionally range into the project area.

The black-footed ferret (endangered) probably existed historically within the project areas. However, no reports have been authenticated for more than 10 years and it is not likely that the ferret now exists on any of the project sites (Smith et al., 1979). A number of prairie dog communities are found in the area of the power plant and raw material supply system alternatives. Black-footed ferrets depend upon prairie dogs as a prey species and, therefore, potential habitat for the ferret is found in the project area.

Wild and Free Roaming Horses

A herd of 30 to 40 wild horses range sporadically in an area of approximately 27,560 acres which includes approximately 1,700 acres of the Bonanza site (see figure 3-4). They spend approximately 51 percent of their time within approximately 14,000 acres around the Bonanza site.

Riparian Habitat

For acres of riparian habitat by each project component, see table 3-4. Riparian habitat in arid and semiarid environments are unique reservoirs of plant and animal diversity. Wildlife use riparian areas disproportionately more than any other type of habitat. Riparian vegetation types in the Mountain West support approximately 50 percent of all bird species and nearly 1/3 of all mammalian species (see Letter 22i, Grand Pre, 1981 of this Final EIS). Studies in the Great Basin of Southeastern Oregon (which is generally analogous to the project areas) have shown that of the 363 terrestrial species known to occur there, 288 are either directly dependent on riparian zones or utilize them more than other habitats (Thomas, Maser, Rodiek, 1978).

AQUATIC SPECIES

Green River

The potential area of impact on the Green River would be downstream of the Walker Hollow collector well system.

Endangered, rare, game, and non-game species have been captured during five studies conducted from 1967 to 1979.

Threatened and Endangered Species, Game Fish, and Non-Game Fish

The endangered species inhabiting the river include: Colorado squawfish, humpback chub, and bonytail chub. The razorback sucker was proposed as threatened but is no longer considered a proposed threatened species by the USFWS. It is rare and is still protected by the States of Utah and Colorado. Colorado squawfish (*Ptychochelius lucius*) inhabit and reproduce in the Green River (Holden and Selby, 1979a). During Holden's investigations, 1,288 young, 256 juveniles, and 22 adults were captured which substantiates reproduction. Evidence from investigations also suggests that the squawfish and the bonytail chub have a minimum flow requirement below which reproductive success is very poor. There is not sufficient information available to indicate that the humpback chub or razorback sucker have suffered from flow depletion. Therefore, "the actual causitive agent of declines, such as water volume, water velocity, available habitat, or altered temperature regime, is not known" (Holden and Selby, 1979a). Seethaler (1978) believes a major threat to these fish, besides altered flow patterns and loss of habitat, is competition with exotic fish species. Therefore, the influence of important limiting factors such as low flows for these rare fish is not completely known.

Nine game fish species have been captured during investigations on the Green River. Of these, only the channel catfish have been commonly found. It is the only game species reproducing in the portion of the river that would be affected (Holden and Selby, 1979a).

The exotic red shiner is the most abundant non-game fish in the river. Carp and fathead minnows are also commonly found. These three species comprise nearly 74 percent of the total catch of five studies.

White River

The section of the White River that could be affected due to water withdrawal begins approximately 19 miles northeast of Rangely, Colorado and terminates at the confluence with the Green River near Ouray, Utah.

Investigators have captured 18 species of fish. Nine are considered native of which three are endangered and one is rare.

As with the Green River, important habitat components for fish are temperature, substrate, and flow (Holden and Selby, 1979b).

Threatened and Endangered Species, Game Fish, and Non-Game Fish

The three endangered species in the White River are the Colorado squawfish (*Ptychocheilus lucius*), the humpback chub (*Gila cypha*), and the bonytail chub (*Gila elegans*); and one formerly proposed threatened species, the razorback sucker (*Xyrauchen texanus*).

Colorado squawfish inhabit the White River in small populations. The squawfish gain access to the White River from the Green River and tend to remain near the mouth of the White River (Lanigan et al., 1979). The presence of young squawfish near Piceance Creek may indicate that they are using that area for spawning (USDI, BLM, 1980). Because squawfish apparently move considerable distances up tributaries, they use the affected area for only short periods of time (Holden and Selby, 1979b).

Two studies reported the presence of the humpback chub in the White River (Sigler and Miller, 1963 and Lanigan et al., 1979). Two hybrids of the humpback chub complex have been reported downstream of the mouth of Scullion Gulch (Lanigan et al., 1979).

Bonytail chubs have not been definitely identified in the White River (USDI, BLM, 1980). Lanigan et al. (1979) identified a fish taken in the lower White River as a bonytail, but it may have been a cross between a bonytail and a humpback (Holden and Selby, 1979a).

Sigler and Miller (1963) reported razorback suckers in the White River near Ouray. These fish may occasionally enter the White River from the Green River.

The upper White River supports a significant sports fishery. The lower White River has a limited sports fishery. Only six game species have been captured in the areas that would be affected. The abundance of all these fish is less than 1.0 percent of the total catch, and reproducing populations of these species are probably non-existent in the White River.

The most abundant non-game fish species collected were the red shiner, speckled dace, and flannelmouth sucker. These three species comprise almost 75 percent of the total reported collections. The exotic red shiner makes up 42.1 percent of the total. This species dominates the lower river section where the river bottom is a sand-silt substrate and the flows are slower (Holden and Selby, 1979b).

CULTURAL RESOURCES

Northeastern Utah and adjacent northwestern Colorado have been the scene of fairly continuous human occupation for the past 12,000 years. The results of archaeological survey and excavation have indicated the presence of nomadic Paleo Indians (10,000-12,000 years ago), Archaic hunters and gatherers (ca. 2250 B.C.-A.D. 350), and agricultural Fremont Indians (ca. A.D. 950-1200). Written records provide accounts of historic Ute, Shoshoni, and historic Euro-American activity in the area.

Numerous sites, localities, and isolated finds exist within the permit boundaries of the various alternatives. Of these, 122 prehistoric and historic cultural resource sites have been recorded in areas that would be subject to ground-disturbing activities. None of these are currently listed in the National Register of Historic Places, although five appear to be eligible for nomination. Five additional sites require some form of subsurface testing before any statement as to their significance can be made. All of the sites were found in open areas. Four basic types were defined: (1) lithic scatters made up mainly of chipped stone artifacts representing limited use; (2) prehistoric campsites containing materials indicative of short-term human occupation; (3) habitation sites containing structures suitable for prolonged residence; and (4) Euro-American campsites characterized by clusters of historic debris. The majority of sites recorded were lithic scatters and prehistoric campsites. A listing of sites that may be affected by project component is found in table 3-8.

VISUAL RESOURCES AND RECREATION

VISUAL RESOURCES

Although the visual resource evaluation and management procedures of the BLM and the USFS differ somewhat, the objectives of both agencies are to classify visual resources according to their inherent scenic quality, the number of people who see them and their attitudes toward alteration of the landscape, their distance from viewers, and the existing man-made intrusions present. Based on this evaluation, areas are assigned management classes. Management guidelines for each class are designed to maintain or enhance the visual quality of the area (see Appendix 16 in the Draft EIS for definition of terms and management classes).

TABLE 3-8

Occurrence of Cultural Resources Power Plant and Raw Material Supply System Alternatives[a]

	Bonanza Site Alternative		Rangely Site Alternative	
Project Component	Sites	Eligible	Sites	Eligible
Plant Site	12	0	21	1
Coal Supply Alternative				
Deserado Mine (subsidence area)	43	4	43	4
Refuse Disposal Area	4	0	4	0
Coal Transportation Alternatives				
Electric Railroad			N/A	
Railroad Main Line	9	0		
Coal Storage and Loadout Area	5	0		
Coal Delivery Conveyor	2	1		
Overland Conveyor	21	0	1	0
Slurry Pipeline	9	0	N/A	
Off-Highway Truck Haul Route	7	0	N/A	
Water Source and Transport Alternative				
Green River Pipeline (including collection well System)	2	0	1	0
Utah White River Reservoir Pipeline	3	1	N/A	
Taylor Draw Reservoir	N/A		2	2
Taylor Draw Reservoir Pipeline	N/A		0	
Wolf Creek Reservoir	N/A		2	2
Wolf Creek Reservoir Pipeline	N/A		No data.	

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[a] Due to the overlap of various project alternatives, sites recorded on one alternative may also appear on another. Therefore, the sites listed in this table cannot be added together for a total. Only 118 sites were recorded, 5 of which appear to be eligible for nomination to the National Register. For management purposes, an additional five sites need subsurface testing for an eligibility determination but are listed on the table as eligible.

The Bonanza site is located within a flat natural-appearing desert valley. The plant site would be located in a Visual Resource Management (VRM) Class IV area comprised of Class C (low quality) scenery, medium sensitivity, and a middleground visual zone. Scenic quality is based on existing form, line, color, and texture. (See Appendix 16 in the Draft EIS for definition of terms.) The location is visible from areas along Utah Highway 45 which has an average daily traffic (ADT) of 280 vehicles. A new paved county road is under construction and will pass about 3 miles north of the plant site. The plant site is in the middleground visual zone from this road.

The Rangely site is in the foreground visual zone of the Staley-Gordon Mine road. The Deserado Mine portal and refuse disposal area would be located in a VRM Class IV area comprised of Class C scenery, medium sensitivity, and in a middleground visual zone. The site is within a flat, undisturbed desert valley and is not visible from adjacent highways. The Deserado Mine portal would be located in a rolling to moderately steep drainage. The ventilation entry would be at the lower end of the same drainage on a site which has already been disturbed by coal development. The refuse disposal and storage and loadout area would be located on natural-appearing rolling topography that is visible (foreground) from the Staley-Gordon Mine road. The Taylor Draw and Wolf Creek Reservoir sites are in a VRM Class II area along the White River. The foothills surrounding the river bottom are in a Class IV area.

Visual resource information (including VRM classes, scenic quality, sensitivity, and visual zones) for the areas that would be crossed by routes for coal transportation and water supply pipelines is shown in figures 3-8 through 3-10 in the Draft EIS. Potentially affected highways and ADT totals are shown in table 3-9.

RECREATION

There are no developed recreation facilities or intensive recreation uses of the power plant or raw material supply system sites. There is a small unquantified amount of off-road vehicle (ORV) use of the area traversed by the Deserado Mine to Bonanza site coal transportation alternatives.

In Utah, both the Green and White Rivers receive a small amount of recreational boating use (under 200 people per year) along the segments from which water could be taken. Recreational use of the White River in Colorado is extremely limited because of current Colorado trespass law which requires boaters to obtain permission from all private landowners along the river.

LAND USES

URBAN USE

Vernal and Rangely are the communities most likely to be affected by the Moon Lake project. Presently, there are 400-500 acres of open land existing in Vernal. In addition, Vernal lies within an area generally referred to as Ashley Valley which has a potential of 23,360 acres available for additional housing, streets, and associated community services. The Uintah School District has purchased three sites for additional schools.

In Rangely, there are presently 162 acres of open land. Also, since 1975, Rangely has maintained a pending public sale application with the BLM for approximately 2,500 urban development acres in order to better accommodate energy-related growth.

TABLE 3-9

Average Daily Traffic (ADT) on Affected Highways

	Bonanza Site Alternatives			Rangely Site Alternatives		
Project Component	Highway	Milepost	ADT	Highway	Milepost	ADT
Railroad and Off-Highway Truck Haul Route	US 40	3-10	775	N/A	N/A	N/A
	Col 64	16-20	950	N/A	N/A	N/A
	Utah 45	28	280	N/A	N/A	N/A
Coal Conveyor	Col 64	13	2,000	0	0	0
	Utah 45	27	280	0	0	0
Slurry Pipeline	Col 64	13	2,000	N/A	N/A	N/A
	Utah 45	27	280	N/A	N/A	N/A
Green River Water Pipelines	0	0	0	Col 64	18	2,000
				Utah 45	26	265

Source: Utah and Colorado Highway Departments. Data for 1978.

The Rio Blanco County School District (RE-4) facilities are being used at approximately 46 percent of capacity.

AGRICULTURE

Traditionally, agriculture and ranching have been the economic mainstay in Rio Blanco and Uintah Counties, and have caused the settlements there. Since about 1970, however, non-agricultural industries, primarily petroleum exploration and production, mining, and tourism, have experienced substantial growth. During the same period, the agrarian section of the economy has declined in importance, despite recent increases in income and production.

Three percent of the total land area in Uintah County is cropland, of which 96 percent (83,435 acres) is irrigated. In Rio Blanco County, 1.6 percent of total land area is cropland, of which 44 percent (16,000 acres) is irrigated. The principal crops of these two counties are hay and small grains.

The Soil Conservation Service (SCS) has determined that prime cropland does not generally exist in Uintah County, with the exception of land along the Green River that has water rights (Anderson, 1979). In Rio Blanco County, prime cropland of designated national importance and lands classified as of statewide importance border the White River. These are generally located on alluvial soils. Appendix 17 in the Draft EIS contains the SCS definitions of these land categories. Approximately 4,000 acres of irrigated land, not prime by SCS standards, are along the White River in the upper White River basin in Colorado. Immediately east and west from Rangely, along the White River, are approximately 2,600 acres of prime (irrigated) farmlands of national importance (SCS standards).

The area that would be inundated by the Taylor Draw Reservoir currently produces 4 tons per acre of alfalfa or 1.66 tons per acre of meadow hay.

The area that would be inundated by the Wolf Creek Reservoir currently produces 4 tons per acre of alfalfa, 1.66 tons per acre of meadow hay, 80 bushels per acre of oats, or 53 bushels per acre of barley (SCS, 1980). The area also produces about 5,000 lbs. of honey annually (Herron, 1980).

GRAZING

Most of the land in Uintah and Rio Blanco Counties is used for rangeland, with less than 17 and 9 percent used for cropland, respectively. There are approximately 2,418,510 pasture and range acres in Uintah County (83 percent of total land area) and 1,999,317 pasture and range acres in Rio Blanco County (91 percent of total land area). Cattle represent the area's largest value of livestock. The 1973 census for Rio Blanco County records 37,000 cattle and 93,000 sheep. Comparable 1978 data for Uintah County show 49,042 cattle and 25,381 sheep.

The power plant sites and raw material supply system alternatives would be located on BLM land presently alloted to sheep grazing. Grazing allotments in project areas are tabulated in table 3-10.

TRANSPORTATION

The major transportation artery of the Uinta Basin is U.S. Highway 40. Running east and west, this highway connects directly with Vernal and passes approximately 18 miles north of Rangely. ADT volume of U.S. Highway 40, from the junction of Utah State Highway 45 to the Colorado state line, is 1,470

TABLE 3-10

Grazing Allotments

Project Component	Allotment	Total Vegetation Allocation (AUMs)[a]	Bonanza Site AUMs in Project Area	Rangely Site AUMs in Project Area
Plant Site	Red Wash	447	N/A	94
	Hall Draw	448	N/A	18
	Antelope Draw	6,707	99	N/A
	Bonanza	2,434	51	N/A
Mine Portal Area	Spooky Mountain	1,480	46	46
Refuse Disposal Area	Red Wash	447	38	38
Coal Storage and Loadout Area	Spooky Mountain	1,480	9	9
	Red Wash	447	4	4
Wolf Creek Reservoir	Coal Reef	359	N/A	23
	Horse Draw	1,518	N/A	32
	Lower Coal Creek	816	N/A	69
	Greasewood	1,727	N/A	22
	Little Spring Creek	1,181	N/A	21
Taylor Draw Reservoir	Spooky Mountain	1,480	N/A	4
	Lower Fletcher Draw	6,041	N/A	2

---

[a] An animal unit month (AUM) is equivalent to 800 pounds of air dry forage which would support about five sheep for 1 month.

vehicles, but in Colorado, directly north of Rangely, decreases to 770 vehicles.

Utah State Highway 45 passes 2.75 miles east of the Bonanza site and extends south to Bonanza from its junction with U.S. Highway 40. ADT volume of Utah State Highway 45 is 280 vehicles (Utah Department of Transportation, 1980).

The Rangely site is situated between U.S Highway 40 and Colorado State Highway 64. Both highways are less than 5 miles from the Rangely site; a graveled road extends from each highway to the site. Colorado State Highway 64 passes through the Town of Rangely. ADT volume east of town is 1,650 vehicles and west of town is 3,000 vehicles (Colorado Department of Highways, 1980a).

No railroads exist in Uintah County and western Rio Blanco County.

Rio Blanco County roads 78 and 65 (Staley Gordon Mine road) are lightly traveled.

MINERALS

The Bonanza site lies within the eastern Uinta Basin Federal oil shale withdrawal area, but is outside important yield deposits. Regional active oil shale operations, the TOSCO Sand Wash project, and the White River Shale project (Tracts U-a and U-b) are located approximately 6 miles and 9 miles respectively southwest from the Bonanza site (Uinta Basin Association of Governments and Utah Energy Office, 1979).

The Bonanza site contains six different oil and gas leases which are a part of the Sand Ridge II Unit Agreement, a known producing area. There is one producing well on the site. There is no evidence of past mining claim activity on the Bonanza site. Underlying the Bonanza site, in sections 25 and 26, is the extension of the Cowboy Vein (gilsonite). The Cowboy deposit is the largest and most valuable of the gilsonite veins in Utah, with an estimated 2.6 million tons economically recoverable on the plant site.

The Rangely site contains nine different oil and gas leases and is in a known coal area; however, no coal has been found on the site. The coal storage and loadout area does not contain active oil and gas leases. The mineral leases and their areas on the project sites are listed in table 3-11.

LAND USE PLANS AND CONTROLS

The power plant and raw material supply system sites would be within the area managed under the BLM White River Management Framework Plan (1978), controlling public lands in Rio Blanco County, and the Bonanza Management Framework Plan (1974), controlling public lands in Uintah County.

Both Vernal City and Uintah County have zoning ordinances (1971). Vernal is currently in the process of developing a land use master plan. The Uinta Basin Association of Governments has prepared the Uinta Basin Development Plan (1979), which covers Uintah County. Rio Blanco County has a zoning ordinance (1978), as does the Town of Rangely (1977). Rio Blanco County and Rangely both have land use master plans (1976). Generally, city ordinances are more stringent in land use control than are county ordinances.

The Bonanza site and raw material supply systems would be located in areas now zoned for mining and grazing. The Rangely site, raw material supply system, Deserado Mine, and the Taylor Draw and Wolf Creek Reservoirs would be located in areas now zoned for agriculture. Mining could occur under this zoning.

TABLE 3-11

Mineral Leases on the Power Plant and Raw Material Supply System Alternative Sites[a]

Bonanza Site		Rangely Site		Refuse Disposal Area		Taylor Draw Reservoir Site		Wolf Creek Reservoir Site	
Number	Acres on Site	Number	Acres on Site	Number	Acres on Site	Number	Acres on Site	Number	Acres on Site
U-29328	72.15	C-14598	231	C-15433	600	C-3823	10	C-21424	175
U-13646	320.00	C-14597a	285			C-26206	30	C-14245a	122
U-0143282a	280.00	C-14509	640			C-9764	30	C-12026	2
U-29327	40.00	C-18437	120					C-15997	6
U-7386	400.00	C-14597	646					C-19713	3
U-0143284	320.00	C-18256	40					C-0695	8
		C-25644	40					C-011902	12
		C-25646	160					CR-205084	56
		C-14533	40					CR-699856	22
								CR-488428	5
								CW-E07/7/1910	448

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[a] U and C numbers are oil and gas leases, CR numbers are patented coal reserve areas, and CW is a coal withdrawal area.

SOCIOECONOMICS

The population centers that would be affected most by the Moon Lake project are Vernal in Uintah County and Rangely in Rio Blanco County. This section discusses the existing socioeconomic situation in each area.

Uintah County's economy is based primarily on petroleum, gilsonite, phosphate, and forest products. Other industries include tourism, farming, and ranching.

Rio Blanco County's economy is based primarily on the production of crude petroleum and natural gas, ranching, forestry, and farming. It is the largest oil-producing county in Colorado.

POPULATION

Uintah County, Utah

The population of Uintah County has grown steadily from 12,684 in 1970 to about 20,479 in 1980, an increase of 61.5 percent. This increase is due primarily to energy industry expansion throughout the 1970s and represents a compound annual growth rate of 4.3 percent. The approximate population for Vernal in 1980 was 6,600.

Rio Blanco County, Colorado

As a result of energy-related expansion throughout the 1970s, the population has increased steadily. Rio Blanco County's estimated 1980 population was 6,249 people, or a 29.1-percent increase since 1970. This represents a compound annual growth rate of 1.8 percent. Rangely's 1980 population was about 2,100.

ECONOMIC CONDITIONS

Uintah County, Utah

The principal manufacturing activities include lumber and wood products, food products, fabricated textile products, and chemicals, all of which remain relatively minor in the overall dollar value contribution to the economy. Without development of the oil industry and tourism, the area would have continued in a relatively depressed economic state during the early to mid-1970s as it relied on agriculture, gilsonite, and phosphate mining for its principal income sources.

Uintah County Financial Resources and Institutions

Property taxes provide the main source of revenue for the city and county governments.

Vernal City government expenditures for the years 1976 through 1978 show a percentage increase in per capita expenditures of 16.5 percent. Uintah County expenditures show an increase in per capita cost of 254.2 percent over the same period.

Uintah County estimates its per capita costs for 1979 were $725.17 (Gilbert, 1980).

The financial resource base of the Uinta Basin is relatively limited, as is the case for most sparsely populated rural areas. However, the conventional oil boom has added significantly to private wealth, as well as to public sector revenues from sales and property taxes.

Uintah County Personal and Per Capita Income

Table 3-12 shows the median family and per capita incomes for Uintah County, as well as for the State of Utah. Median family and per capita income in Uintah County are below the state level. However, percentage changes from 1970 to 1975 for per capita income indicate that Uintah County growth has been greater than that for the State of Utah.

TABLE 3-12

Uintah County and Utah
Median Family and Per Capita Income

	Median Family Income			Per Capita Income		
	Amount		Percent Change	Amount		Percent Change
	1970[a]	1975[b]	1970[a]-1975[b]	1970[a]	1975[b]	1970[a]-1975[b]
Uintah County	$8,082	$13,152	+ 62.7	$2,234	$3,574	+59.9
State of Utah	9,320	14,329	+ 53.7	2,697	4,022	+49.1

Source: [a]U.S. Department of Commerce, 1970a.

[b]U.S. Department of Commerce, 1977.

Labor Force and Employment

Table 3-13 illustrates the labor force estimates for Uintah County and the State of Utah. As indicated by the table, county unemployment rates are lower than the state average. This trend is expected to continue as the area hosts economic growth including energy-related industry.

TABLE 3-13

Uintah County and Utah
Labor Force and Employment

	Total Labor Force	Total Employed	Total Unemployed	Percent Unemployment
Uintah County	8,400	8,100	300	3.5
State of Utah	613,800	589,100	24,700	4.0

Source: Utah Department of Employment Security, 1979.

From 1970 to 1979, the total labor force in Uintah County increased 91.6 percent. Increased activity in conventional oil and gas exploration and production has resulted in rapid growth of employment in energy-related industry. Overall employment increased by 13.1 percent between 1970 and 1976.

The U.S. Bureau of Labor statistics considers 260 days per year as a full employment standard. Approximately 44 percent of the total labor force worked an average of less than 250 days per year. These figures characterize outdoor, weather-sensitive activities, (i.e., oil field work, construction, etc.).

Rio Blanco County, Colorado

The economy of the area has been tied to its natural resources. Rio Blanco County produces 60 percent of Colorado's petroleum and 37 percent of its natural gas. Nevertheless, agriculture has remained a viable and significant contributor to the area's economy.

Property taxes provide the main source of revenue for the city and county governments.

Rio Blanco County Financial Resources and Institutions

The principal sources of revenue to state government in Colorado are an income tax and a 3-percent sales and use tax. At the city and county levels, property taxes provide the main source of revenue.

Future developments in the mineral extraction and utilities industries can be expected to make substantial contributions to the local tax base.

The Rangely Town government expenditures for 1977 and 1978 show a per capita increase of 110.7 pecent. Rio Blanco County's government expenditures for 1977 and 1979 show a per capita increase of 39.3 percent.

Rio Blanco County estimates its total per capita costs for 1979 were $1,005.87 (Bloomfield, 1980).

Rio Blanco County Personal and Per Capita Income

Table 3-14 shows the median family and per capita incomes for Rio Blanco County and the State of Colorado. Median family and per capita income in Rio Blanco County are below the state level. However, the growth rate within Rio Blanco County has been greater than that for the State of Colorado.

TABLE 3-14

Rio Blanco County and Colorado
Median Family and Per Capita Income

	Median Family Income			Per Capita Income		
	Amount		Percent Change	Amount		Percent Change
	1970[a]	1975[b]	1970[a] 1975[b]	1970[a]	1975[b]	1970[a] 1975[b]
Rio Blanco County	$8,007	$11,054[c]	+38.0	$2,481	$4,135	+66.6
State of Colorado	9,552	12,990	+35.9	3,106	4,884	+57.2

Source: [a]U.S. Department of Commerce, 1970a.

[b]U.S. Department of Commerce, 1977.

[c]Colorado Department of Health, 1976.

Rio Blanco County Labor Force and Employment

There has been an upward trend in the number of jobs in Rio Blanco County. However, employment in the agriculture and service sectors has declined, while energy-related industry employment has shown the greatest increase.

Table 3-15 illustrates the labor force estimates for Rio Blanco County and the State of Colorado for May 1979. County unemployment rates are well below the state average of 3.2 percent. This trend is expected to continue as the area's continued growth in energy-related industry adds to the area's economy. The Rio Blanco County labor force increased approximately 18.5 percent from 1970 to 1978.

TABLE 3-15

Rio Blanco County and Colorado
Labor Force and Employment

	Total Labor Force	Total Employed	Total Unemployed	Percent Unemployment
Rio Blanco County	2,600	2,554	46	1.8
State of Colorado	1,370,000	1,326,000	44,000	3.2

Source: Colorado Department of Labor and Employment, 1979.

Approximately 47 percent of the total Rio Blanco labor force worked an average of less than 250 days per year. These figures characterize activity dominated by weather-sensitive operations.

HOUSING

Among the most basic elements indicative of a community's level of living are the nature and condition of its housing. Housing is also one of the most immediately impacted areas during large-scale construction projects.

Recent residential construction has improved the overall housing profile for the region, but it has not met the need for additional housing generated by the existing and the potential energy-related population growth.

Uintah County Housing

Table 3-16 indicates the year-round housing stock for Uintah County and Vernal between 1970 and 1976.

TABLE 3-16

Uintah County and Vernal
Year-Round Housing Units

	Owner Units		Rental Units		Mobile Homes		Total	
	1970[a]	1976[b]	1970[a]	1976[b]	1970[a]	1976[b]	1970[a]	1976[b]
Uintah County	2,565	3,196	868	1,081	297	1,030	3,730	4,986
Vernal	822	1,173	278	397	23	323	1,123	1,830

Source: [a]U.S. Department of Commerce, 1970b.

[b]Uinta Basin Association of Governments, 1977.

Factors contributing to the existing housing problems in the area include: high construction costs, high mortgage rates, inadequate family income, and transitory influx of construction and mining employment, and the risk of not being able to sell new or preowned housing.

Because of the potential demand for housing, several subdivisions have been developed. Although these building sites tend to alleviate the demand for housing in the upper income brackets, affordable housing for moderate-to-middle income groups will remain a scarce commodity. In addition, there are four new mobile home parks in Vernal.

Rio Blanco County Housing

A shortage of adequate and affordable housing is one of the most serious problems facing Rangely. Moderately priced, single-family conventional housing is virtually unavailable. Construction costs and mortgage rates are prohibitively high and leave only mobile homes as a housing alternative for Rangely's moderate-income families.

However, Rio Blanco County has approved the issuance of tax exempt bonds by the county to finance a Residential Mortgage Program for the purpose of expanding the availability of capital to finance housing for low and middle income persons in the county.

The first bond issue is a combined issue in cooperation with Moffat County, Colorado in the amount of $15 million. A possibility exists for a second issue when the first issue is used up (Rehborg, 1980).

Table 3-17 indicates the year-round housing stock for Rio Blanco County and Rangely between 1970 and 1976.

TABLE 3-17

Rio Blanco County and Rangely
Year-Round Housing Units

	Owner Units		Rental Units		Mobile Homes		Total	
	1970[a]	1976[b]	1970[a]	1976[b]	1970[a]	1976[b]	1970[a]	1976[b]
Rio Blanco County	1,140	1,467	683	716	145	340	1,968	2,523
Rangely[c]	273	381	165	254	85	115	523	750

Source: [a]U.S. Department of Commerce, 1970b.

[b]Department of Local Affairs, 1978.

[c]Rangely Town Clerk, 1979.

Approximately 490 building sites were added in the Rangely area in 1979. In addition, three new mobile home parks have been added to the area.

COMMUNITY SERVICES

Uintah County, Utah

Uintah County Education

The Uintah County School District is comparable to the state in the area of average faculty salary and exceeds the state average for pupil/teacher ratio. Selected data concerning the school system in 1977 is presented in table 3-18.

TABLE 3-18

Uintah County and Utah
Selected School System Data - 1977

	Percent of Faculty With Masters Degree	Maximum Salary	Number of Schools	Pupil/Teacher Ratio
Uintah County	20.4	$13,500	9	27.2
State of Utah	27.7	13,826	563[a]	22.8

Source: Bureau of Economic Research, 1979.

[a] Bureau of Economic Research, 1978.

The Uintah County School District had enrollments at almost all grade levels that exceeded the system's designed capacity. This situation was alleviated at the elementary grade level in the fall of 1980 with the opening of a new elementary school having a capacity for 650 students.

Table 3-19 shows the amount of student population growth as projected by the district through 1984.

TABLE 3-19

Uintah County
Student Enrollment Projections

1980-81	1981-82	1982-83	1983-84
5,164	5,330	5,374	5,500

Source: Uintah School District Superintendent, 1980.

The district currently has some flexibility, with trailer facilities and relocatable classrooms, capable of accommodating approximately 200 students.

To adequately prepare for an energy boom, the Uintah School Board has purchased 85 acres of land for future school construction and use. This would cut the cost of future land acquisition and speed up the process of providing new facilities should the need arise. The school district is presently free of bonded indebtedness.

Vernal Municipal Water Systems

Vernal's water system has a storage capacity of 2.5 million gallons and a deliverable capacity of 9 million gallons per day (mgd). Peak demand is 8.65 mgd. An additional 3-million-gallon storage tank is to be built in the spring of 1981. The system has a conditionally approved state health rating, pending corrective action currently underway.

To meet additional water needs, Vernal has access to the Red Fleet Dam and Reservoir. This reservoir could supply the Vernal area water system with 12,000 acre-feet of water for municipal and industrial use.

The distribution system in Vernal is under repair through the use of a $300,000 bond issue approved in 1979. The Central Utah Water Conservancy District is building a water treatment plant in order to use water from the Red Fleet Reservoir. This plant is tentatively scheduled to be built by 1982. Vernal City also expects to receive a grant from the Farmer's Home Administration and the State of Utah to increase their storage capacity and add some new water lines.

Vernal Municipal Waste Water Facilities

Vernal City has a waste water treatment plant with a capacity of 2.7 mgd and a design population equivalent of 7,500 people. The average flow is 1.7 mgd.

The Vernal system presently serves most of Vernal City and a limited number of county residents in the immediate vicinity. The disposal system, which was placed in operation in 1957, is overloaded due to increases in population and infiltration of ground water into the collection system.

A valley-wide sewer system is to be constructed in Ashley Valley. This system would solve the various problems associated with the existing collection and disposal systems.

Local governments have received a $6.8-million grant from EPA and state funds for a new sewage treatment lagoon system and new sewer lines. Construction began in March 1980 and should be completed in 1981. The new plant is designed to accommodate a population of about 20,000 people with provisions for modifications to more than double this capacity.

Vernal City Fire Protection

The City of Vernal is served by an all-volunteer fire department with 20 active members. Their equipment consists of two 1,250-gallon-per-minute (gpm) pumpers, one 750-gpm pumper, and one 500-pound dry chemical unit.

Fire protection class ratings range from 1, the most adequate, to 10, the least adequate. The City of Vernal has a class rating of 6.

Uintah County Law Enforcement

Law enforcement in Uintah County is administered by the Uintah County Sheriff's Department, the Vernal Police Department, and the Utah State Highway Patrol. Uintah County has one full-time sheriff and nine deputies. The Utah Highway Patrol has 13 patrolmen assigned to cover the major highways throughout the county.

The City of Vernal has 13 full-time officers, 13 patrol cars, and one truck at its disposal.

A 6-cell detention facility is operated by the Uintah County Sheriff's Department in Vernal.

Vernal and Uintah County Health Facilities and Personnel

Table 3-20 shows the ratio of doctors and dentists to population in the area in 1979.

TABLE 3-20

Uintah County Physician-Dentist/Population Ratio

	Total Number of Physicians	Physician/ Population Ratio	Total Number of Dentists	Dentist/ Population Ratio
Vernal	6	1:1100	7	1:943
Uintah County	6	1:3413	7	1:2925
State of Utah (1976)[a]	1,801	1:684	851	1:1447

Source: Uintah County Hospital, 1979.

[a] Bureau of Economic and Business Research, 1979.

Vernal has three medical clinics, a new 36-bed hospital, and no free or nonprofit clinics. The hospital is fully equipped for surgery and other procedures and is currently being utilized well under capacity.

Ambulance service is provided by Uintah County and staffing is provided by volunteer emergency medical technicians.

Rio Blanco County, Colorado

Rio Blanco County Education

Although the Rio Blanco County School District (RE-4) average faculty salaries are lower than the state average, the District is well below the state average for pupil/teacher ratio. Selected data concerning the school system is presented in table 3-21.

TABLE 3-21

Rio Blanco County and Colorado
Selected School System Data - 1977

	Rio Blanco County	Colorado
Percent of Faculty with Masters Degree	39.5	38.0
Average Salary	12,393.0	14,018.0
Number of Schools	3.0	1,263.0
Pupil Teacher Ratio[a]	14.3	19.6

Source: [a] Colorado Department of Education, 1978.

The Rio Blanco County School District (RE-4) has enrollments at all grade levels that are well below the system's design capacity. Enrollment figures for the 1979 school year indicate an average utilization of 46 percent of the 1,200 student capacity.

Table 3-22 shows the projected student population growth for the years 1980 through 1984.

TABLE 3-22

Rio Blanco County
Student Enrollment Projections

1980	1981	1982	1983	1984
610	635	660	710	760

Source: Rangely Superintendent of Public Schools, 1979.

Rangely Municipal Water Systems

Rangely's water supply is presently provided by an intake from the White River. The plant storage capacity is 0.75 mgd which equals the town's summertime peak demand (Beard, 1980). The storage and distribution system was rebuilt in 1965 and is in good condition. The system meets applicable state and local standards.

A new treatment plant for Rangely was completed in 1978. The old plant will be retained for emergencies and to provide service during future expansions of the new plant.

Present capacity is 2.6 mgd and would service a population of up to 5,000 persons. The new plant will eventually provide 4.32 mgd to serve a population of approximately 10,000 persons. Rangely holds a 30.95-cfs water right on the White River for future expansion.

In order to finance improvements in the water system, Rangely has incurred some long-range debt. Some $1.2 million is owed to the Economic Development Administration and the Colorado Water Conservation Board. The Town has not been able to start repaying this latter debt since incurring it in 1978. Another $150,000 loan application for water plant improvements are approved in January 1981.

The Town has attempted to meet these liabilities and high operational costs with its water rates and plant investment fees. However, this has not been sufficient to date.

Rangely Municipal Waste Water Systems and Treatment Facilities

Sewage collection and treatment is provided by the Rangely Sanitation District, the boundaries of which closely coincide with the town limits.

The sewage treatment plant has a design capacity to serve a population of 10,000. Construction has been staged to initially serve 4,000 persons and handle 0.4 mgd, with a second stage to serve an additional 6,000 persons and handle 1.0 mgd.

Rangely Fire Protection

Rangely is served by an all-volunteer fire department with 22 active members. Their equipment consists of five vehicles, which include one 1,250-gpm pumper, one 1,100-gal. tanker, and one 90-gpm "quick attack" truck. They also plan to add a new 500-gal. tanker when funds permit.

Fire protection class ratings range from 1, the most adequate, to 10, the least adequate. Rangely has a class rating of 8.

Rio Blanco County Law Enforcement

Law enforcement in Rangely is administered by the County Sheriff's Department, the Rangely Police Department, and the Colorado State Highway Patrol. The Sheriff's Department has three full-time deputies stationed in Rangely. The Colorado Highway Patrol has two patrolmen in Rio Blanco County. Rangely has four full-time officers, three patrol cars, and a 2-cell detention facility.

Rio Blanco County Health Facilities and Personnel

Table 3-23 indicates the number of physicians and dentists available in 1979 relative to the Rangely area population.

TABLE 3-23

Rio Blanco County and Colorado
Physician-Dentist/Population Ratio

	Total Number of Physicians	Physician/ Population Ratio	Total Number of Dentists	Dentist/ Population Ratio
Rangely[a]	2	1:1056	1	1:2112
Rio Blanco County[b]	4	1:1562	2	1:3124
State of Colorado (1970)[b]	3,795	1:581	1,104	1:1999

Source: [a]Rangely District Hospital, 1979.

[b]U.S. Department of Commerce, County and City Data Book, 1977.

The Rangely District Hospital and Medical Clinic presently have two full-time practicing physicians and a full-time dentist.

The Rangely District Hospital has a capacity of 28 beds and could serve a population of between 7,500 and 9,000 people. Based on current population projections, there would be a need to add 12 additional beds by 1983 if oil shale developments were approved. The hospital provides ambulance service in the Rangely area. The hospital is currently used at about 22 percent (LeMoine, 1980) of capacity.

QUALITY OF LIFE

Uintah and Rio Blanco County Community Homogeneity

Historically, communities in Uintah and Rio Blanco Counties have been culturally homogeneous and have valued neighborliness, friendliness, mutual self-help, close family ties, family pride, economic independence, local autonomy, and a strong religious life. Energy development since World War II has gradually weakened this cultural homogeneity.

Uintah and Rio Blanco County Public Attitudes

Residents have traditionally regarded the natural environment as important to personal psychological well-being. While local people enjoy the rural landscape character, great emphasis is also placed on controlled economic development which must inevitably result in increased urbanization. In response to a survey (Opinion Sampling Research Institute, 1975) concerning the alternatives of economic growth versus rural character, 63 percent of Vernal residents indicated economic growth was important, 26 percent felt that rural character was important, and 11 percent were undecided. Sixty-one percent of the Rangely populace said economic growth was important, 27 percent stated rural character was important, and 12 percent were undecided. A similar percentage spread indicated that increases in population would be favored if local taxes would rise only moderately.

In Rangely, there is an apparent increasing liberal attitude toward growth. Growth is regarded as important to economically uplift the area out of a declining period of oil production, which in the past has been the community's main source of income. Conversely, northwestern Colorado residents do not want growth to become unmanageable or to destroy the existing fabric of social life. It has been expressed previously that they do not want to pay the social and environmental costs of power generation that would be exported to distant cities (USDI, BLM, 1976).

County commissioners from both Uintah and Rio Blanco Counties have recently expressed a positive attitude toward having the Moon Lake project in their respective areas.

An attitudinal survey of the Vernal area (Geertsen et al., 1975) indicated that 79 percent of residents said their community was a good or excellent place to live, and 64 percent felt they were fully accepted as a part of the community. In response to whether the community was a good place to raise a family, 49 percent said it was a strong point for Vernal, and 38 percent thought it was satisfactory. Asked if the community provided opportunities to earn a livable income, nearly 43 percent said it was satisfactory, and 33 percent said it was a community strength. (Similar data from the Rangely area is not available.)

Quality of Life Indicators

Energy development has already caused substantial changes in population mix and patterns of everyday life in the communities within the project area.

Conservative social attitudes and emphasis on strong family ties have thus far maintained average to low divorce rates in the area. Divorce rates of 3.6 per 1,000 population have been recorded for Uintah County in 1975, 6.2 per 1,000 for 1976, and 4.7 per 1,000 for 1977 (Utah Bureau of Health Statistics). Comparable figures for Rio Blanco County are: 4.2 per 1,000 for 1975, 5.3 per 1,000 for 1976, and 5.4 per 1,000 for 1977 (Colorado Health Statistics and Vital Records Division).

For its population size, juvenile delinquency appears to be a substantial problem in the impact area. Uintah County reported 455 offenses in 1978 (Utah Juvenile Court, 1978). The Rio Blanco County Sheriff's Office reported 34 juvenile arrests in 1978. In contrast, low incidence of dropouts has been indicative of the emphasis traditionally given to formal education. In the last 3 years, Rangely High School (1979 enrollment of 318) experienced a total of 26 dropouts and Uintah High School (Vernal) (1979 enrollment of 866) had 38 dropouts (Uintah and Rangely High Schools, 1979).

There are low incidences of crime, as would be expected in a rural area. Table 3-24 lists the basic crime statistics that have been recorded for the project area.

TABLE 3-24

Crime Statistics for 1978

	Total County Population	Murder	Rape	Robbery	Assault	Burglary	Larceny Theft	Motor Vehicle Theft
Uintah County	18,600	0	0	1	1	21	92	20
Rio Blanco County	5,300	0	0	0	9	50	125	6

Sources: Utah Bureau of Criminal Identification, 1978.
Colorado Bureau of Investigation, 1978.

SECONDARY INFLUENCE ZONE

INTRODUCTION

The secondary influence zone is defined as the area within about a 2-hour driving distance from Vernal and Rangely (figure 3-5). Studies have shown that most people will drive up to 2 hours for weekend recreation (Utah Dept. of Natural Resources, 1973). It is assumed that most recreational pursuits would be confined to this area.

The Uinta Basin makes up the majority of the secondary influence zone. It is bordered by the Uinta Mountains on the north, the Wasatch Mountains and high plateaus on the west, the White River Plateau and the West Elk Mountains on the east, and the Uncompaghre Plateau on the southeast (Thornbury, 1965). It is rich in energy resources such as minerals, oil shale, oil and gas, and tar sands. Many plans and proposals have been made for the development of these resources, but no accurate projections of the extent and time of development can be made.

Only those resources which could be significantly impacted by increased recreational activities are described below.

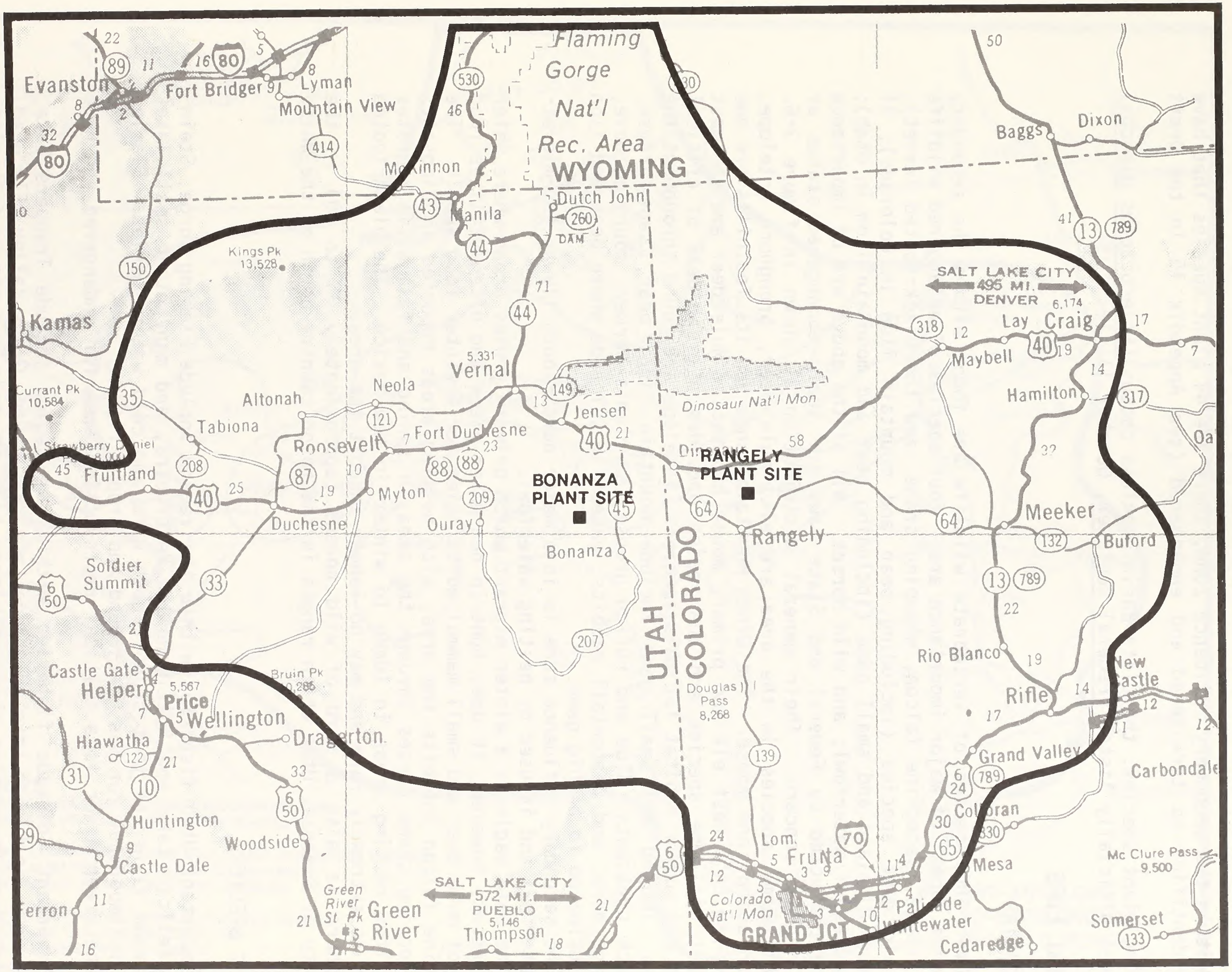

Flaming Gorge Nat'l Rec. Area
WYOMING
UTAH
COLORADO
BONANZA PLANT SITE
RANGELY PLANT SITE
Dinosaur Nat'l Mon
SALT LAKE CITY 495 MI. DENVER
SALT LAKE CITY 572 MI. PUEBLO
Evanston
Fort Bridger
Lyman
Mountain View
McKinnon
Manila
Dutch John
DAM
Kings Pk 13,528
Kamas
Currant Pk 10,584
Strawberry
Fruitland
Tabiona
Altonah
Neola
Roosevelt
Fort Duchesne
Vernal
5,331
Jensen
Duchesne
Myton
Ouray
Bonanza
Soldier Summit
Castle Gate
Helper
Price
5,567
Wellington
Dragerton
Bruin Pk
Hiawatha
Huntington
Castle Dale
Ferron
Woodside
Green River St Pk
Green River
Thompson
5,146
Rangely
Douglas Pass 8,268
Lom.
Fruita
Colorado Nat'l Mon
GRAND JCT
Palisade
Whitewater
Cedaredge
Mesa
Collbran
Grand Valley
Rifle
Rio Blanco
New Castle
Carbondale
Mc Clure Pass 9,500
Somerset
Meeker
Buford
Hamilton
Maybell
Lay
Craig
6,174
Baggs
Dixon

FIGURE 3-5

SECONDARY INFLUENCE ZONE

THREATENED AND ENDANGERED PLANTS

Within the secondary influence zone, there are 44 plant species that have been identified as threatened and endangered (see Appendix 15 in the Draft EIS).

One plant species, the Uinta Basin hookless cactus (Sclerocactus glaucus) has been officially listed (Federal Register, October 11, 1979).

ANIMAL LIFE

TERRESTRIAL

Over 400 species of vertebrate wildlife are found within the secondary influence zone. Of major importance are: four species of endangered wildlife (bald eagle, peregrine falcon, whooping crane, and the black-footed ferret); five big game species (including bear and mountain lion in Colorado); 11 species of upland and small game (including bear and mountain lion in Utah); 10 species of waterfowl; and wild horses. All of the above are of importance or are protected by Federal and State laws for their endangered status or other public concern. Their general distribution is shown in figure 3-6.

Big game species in the area are elk, mule deer, pronghorn antelope, bighorn sheep, and moose. The Uinta Mountain range and its foothills are one of the region's best elk and primary moose habitats. Mule deer are the most abundant big game species and the region provides a great deal of critical winter and summer habitat for this species. Antelope are found throughout the region. Upland and small game include mountain lion, bear, sage grouse, ringneck pheasants, blue and ruffed grouse, Merriam's turkey, mourning dove, snowshoe hare, and cottontail rabbits, except in Colorado where bear and lion are considered to be big game.

The secondary influence zone is in a major north-south flyway for migrating waterfowl and is used by nesting waterfowl.

The bald eagle is a winter migrant which primarily uses areas where water is abundant; however, it does hunt in non-water areas and often utilizes road kills of mule deer and small mammal mortalities for a winter food supply. The peregrine falcon inhabits the area, with nesting areas reported in Dinosaur. The whooping crane passes through the area in spring and fall as it migrates south from nesting areas in Idaho to winter in New Mexico. The black-footed ferret is extremely rare and may no longer inhabit the area.

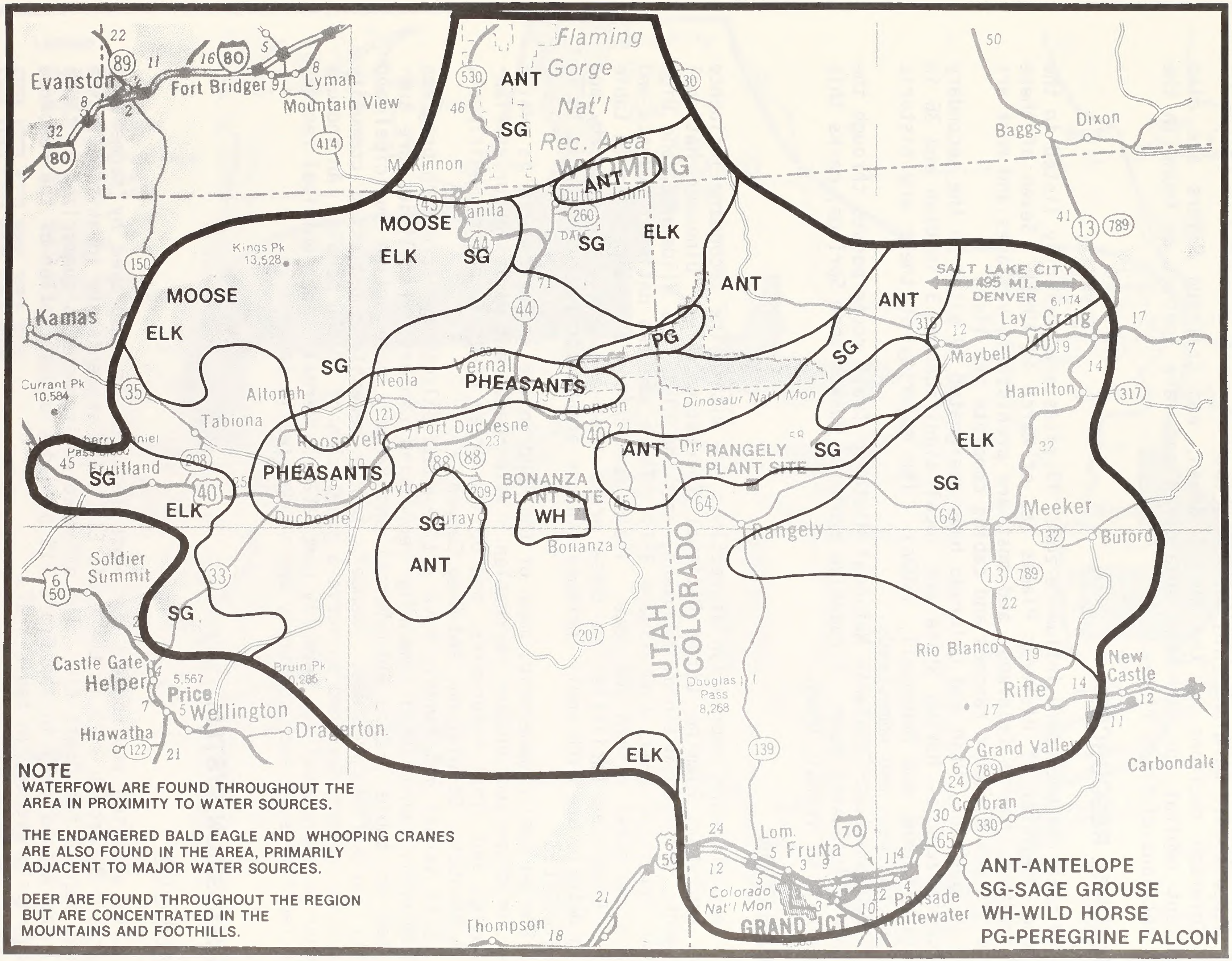
There is also a herd of wild horses (approximately 35 to 40) in the vicinity of Bonanza, Utah which ranges in the rough country north of the White River.

AQUATIC SPECIES

Important Utah fisheries within the region include Flaming Gorge, Steinaker, Pelican Lake and Bottle Hollow Reservoirs, and many other small lakes and stream fisheries that support both warm and cold water species. Flaming Gorge is important for its year-round and trophy fishing.

The Green River is a critical reproduction area for endangered and rare fish.

Important Colorado fisheries within the region include Trappers Lake, Lake Avery, Rio Blanco Lake, Highline Lake, Rifle Gap, Grass Valley, Elk Head, and Mack Mesa Reservoirs along with many high mountain and stream fisheries. Colorado cutthroat inhabit Trappers Lake, and it is the only source of eggs


ANT-ANTELOPE
SG-SAGE GROUSE
WH-WILD HORSE
PG-PEREGRINE FALCON
ANT
SG
ELK
MOOSE
PHEASANTS
PG
WH
Flaming Gorge Nat'l Rec. Area
WYOMING
UTAH
COLORADO
SALT LAKE CITY 495 MI. DENVER
RANGELY PLANT SITE
BONANZA PLANT SITE
Dinosaur Nat'l Mon
Colorado Nat'l Mon
Evanston
Fort Bridger
Lyman
Mountain View
McKinnon
Manila
Dutch John
Kings Pk 13,528
Kamas
Currant Pk 10,584
Altonah
Tabiona
Neola
Vernal
Jensen
Roosevelt
Fort Duchesne
Myton
Duchesne
Fruitland
Ouray
Bonanza
Soldier Summit
Castle Gate
Helper
Price
Wellington
Hiawatha
Dragerton
Bruin Pk 10,285
Thompson
Douglas Pass 8,268
Rangely
Dinosaur
Baggs
Dixon
Lay
Craig
Maybell
Hamilton
Meeker
Buford
Rio Blanco
Rifle
New Castle
Grand Valley
Carbondale
Cobran
Palisade
Whitewater
Fruita
Loma
GRAND JCT

NOTE
WATERFOWL ARE FOUND THROUGHOUT THE AREA IN PROXIMITY TO WATER SOURCES.

THE ENDANGERED BALD EAGLE AND WHOOPING CRANES ARE ALSO FOUND IN THE AREA, PRIMARILY ADJACENT TO MAJOR WATER SOURCES.

DEER ARE FOUND THROUGHOUT THE REGION BUT ARE CONCENTRATED IN THE MOUNTAINS AND FOOTHILLS.

FIGURE 3-6

WILDLIFE WITHIN THE SECONDARY INFLUENCE ZONE for this species. Rifle Gap and Elk Head Reservoirs are important because they support both warm and cold water species.

Colorado sections of the White, Green, and Colorado Rivers are also important habitat for the same endangered and rare species as found in the Utah sections of these rivers.

CULTURAL RESOURCES

Within the secondary influence zone, 17 sites are currently listed in the National Register of Historic Places (as of March 4, 1980). Seven of these are in Utah, ten in Colorado, and most are prehistoric villages and rock art sites. A few historic ranches and cabins complete the list.

In addition, Utah and Colorado have designated 39 sites in the secondary influence zone as having State and local significance--3 in Utah and 36 in Colorado (Burns and McDonnell, 1980c). The majority of these are historic cabins, ranches, and homesteads.

The Dominguez-Escalante National Historic Trail route passes through the secondary influence zone. A roadside exhibit, Musket Shot Springs, marks this route east of Vernal, Utah.

RECREATION

Several major recreation attractions are within the secondary influence zone including Flaming Gorge National Recreation Area, Dinosaur National Monument, Colorado National Monument, and the Flat Tops Wilderness and High Uintas Primitive Areas (see figure 3-7). There are two national forests and five state parks within the zone. These attractions are summarized in table 3-25. Developed facilities in these areas that are used near capacity and would deteriorate with small increases in use are summarized in Appendix 18 in the Draft EIS.

Due to public ownership, much of the land in the influence zone is available for dispersed outdoor recreation. Water-based activities occur at Flaming Gorge and other reservoirs, and on the Green River in Lodore, Whirlpool, Split Mountain, Desolation, and Gray Canyons.

Both Vernal and Rangely have active municipal/county recreation programs and recently constructed community recreation centers. Facilities are summarized in table 3-26. Both Vernal and Rangely have active municipal and county recreation programs. Rangely has a recently constructed community recreation center designed to serve a population of 10,000 people. An indoor/-outdoor swimming pool was recently completed in Vernal. The municipal recreation facilities in each community are summarized in table 3-26.

TRANSMISSION SYSTEM

INTRODUCTION

The affected environment for each resource is displayed by segment in figures 3-8 through 3-23 in the Draft EIS. The segments are identified in the pocket map in the Draft EIS. The affected environment is summarized in table 3-27 and Appendix 19 in the Draft EIS provides a description of the resource categories presented in table 3-27.

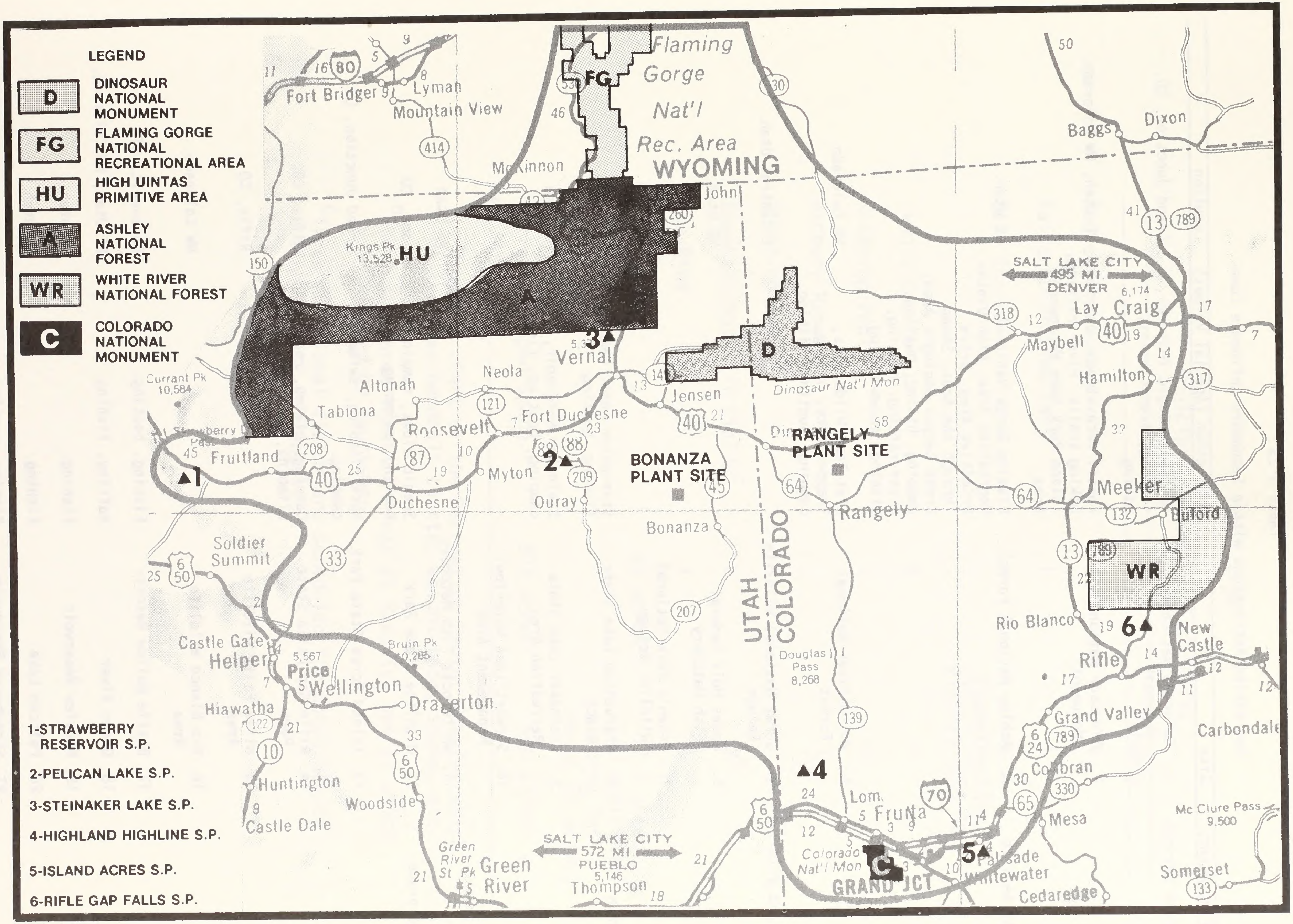

LEGEND
D DINOSAUR NATIONAL MONUMENT
FG FLAMING GORGE NATIONAL RECREATIONAL AREA
HU HIGH UINTAS PRIMITIVE AREA
A ASHLEY NATIONAL FOREST
WR WHITE RIVER NATIONAL FOREST
C COLORADO NATIONAL MONUMENT
1-STRAWBERRY RESERVOIR S.P.
2-PELICAN LAKE S.P.
3-STEINAKER LAKE S.P.
4-HIGHLAND HIGHLINE S.P.
5-ISLAND ACRES S.P.
6-RIFLE GAP FALLS S.P.
Flaming Gorge Nat'l Rec. Area
WYOMING
UTAH
COLORADO
Dinosaur Nat'l Mon
RANGELY PLANT SITE
BONANZA PLANT SITE
SALT LAKE CITY 495 MI. DENVER
SALT LAKE CITY 572 MI. PUEBLO
Kings Pk 13,528
Currant Pk 10,584
Bruin Pk 10,285
Douglas Pass 8,268
Mc Clure Pass 9,500
Colorado Nat'l Mon
Fort Bridger
Lyman
Mountain View
McKinnon
Baggs
Dixon
Craig
Lay
Maybell
Hamilton
Meeker
Buford
Rio Blanco
Rifle
New Castle
Grand Valley
Carbondale
Collbran
Mesa
Palisade
Whitewater
Cedaredge
Somerset
Grand Jct
Fruita
Loma
Rangely
Jensen
Vernal
Neola
Altonah
Tabiona
Roosevelt
Fort Duchesne
Myton
Ouray
Bonanza
Duchesne
Fruitland
Strawberry Pass
Soldier Summit
Castle Gate
Helper
Price
Wellington
Dragerton
Hiawatha
Huntington
Castle Dale
Woodside
Green River
Green River St Pk
Thompson

FIGURE 3-7

RECREATIONAL AREAS WITHIN THE SECONDARY INFLUENCE ZONE

TABLE 3-25

Recreation Attractions Within Secondary Influence Zone

Administering Agency	Site	Attraction (Special Values)	Location
National Park Service	1. Colorado National Monument	Unique geologic features, camping, scenic areas, hiking.	Grand Junction, CO.
	2. Dinosaur National Monument	Fossil excavations, camping, hiking trails, river rafting, Island Park Game Management Area.	NE Utah, NW Colorado.
U.S. Forest Service	3. Ashley National Forest	Flaming Gorge National Recreation Area, High Uintas Primitive Area, Drive Through the Ages, Sheep Creek Canyon Geologic Area, camping, hiking, boating, river rafting, hunting, fishing, snowmobiling.	NE Utah.
	4. White River National Forest	Flat Tops Wilderness, Trapper Lake, hiking, camping, hunting, fishing.	NW Colorado.
U.S. Fish and Wildlife Service	5. Ouray National Wildlife Refuge		E Central Utah.
	6. Jones Hole Federal Fish Hatchery		NE Utah
	7. Brown's Park National Wildlife Refuge		NE Utah
State of Utah	8. Starvation Lake State Beach	Starvation Lake, camping fishing, boating.	NE Utah
	9. Steinaker Lake State Recreation Area	Steinaker Reservoir, camping, boating, fishing.	NE Utah
	10. Stewart Lake Waterfowl Management Area		NE Utah
	11. Whiterocks Fish Hatchery		NE Utah
State of Colorado	12. Highline State Park	Scenic views, camping, boating, swimming.	Loma, CO.
	13. Island Acres State Park	Rock climbing, swimming, camping.	Grand Junction, CO.
	14. Rifle Gap Falls State Park	Camping, hiking, rock climbing, boating.	Rifle, CO.
	15. Rifle Falls Wildlife Area		Rifle, CO
	16. Rio Blanco Wildlife Area		NW Colorado.
Other	17. Bottle Hollow Resort	Fishing, boating.	Roosevelt, UT.
	18. Green River	Rafting, fishing.	NE Utah, NW Colorado.
	19. Midview Reservoir	Fishing.	NE Utah.
	20. Pelican Lake	Fishing	NE Utah.
	21. Strawberry Reservoir	Fishing, camping	NE Utah

TABLE 3-26

Municipal Recreation Facilities

	Vernal	Rangely
Recreation Center		1
Fairground/Rodeo Park	1	1
Golf Course	1	1 (construction planned 1981-82)
Tennis Courts	8	7
Swimming Pools[a]	1	1
Archery Range		1
Shooting Range[b]	1	
Baseball/Softball Fields[c]	6	2[c]
Ice Rink	1	1
Town Parks	25 acres	17.5 acres (two additional planned for about 70 acres)
Recreation/Open Space	873 acres	600 acres

---

[a] In Rangely: Part of the Recreation Center Complex which also includes handball courts, weight room, sauna, etc.

[b] There are three shooting areas at Rangely, one of which is maintained by sportsmen.

[c] Three additional fields are scheduled for construction during 1981-82 in Rangely.

TABLE 3-27

Transmission System Affected Environment[a]
Section A
Bonanza Unit 1 Routing Alternatives

	Bonanza to Tank Hollow--345-138-kV Combined System via.				Bonanza or Rangely Plant Site Tank Hollow to Mona--345-kV System via		
Resource Category	Upalco-Fruitland	Upalco-Sowers	Castle Pk.-Sowers	Castle Pk.-Fruitland	Dairy Fork	Thistle Canyon	Utah Valley
Soil Erosion Hazard							
Moderate	76.7	74.7	82.7	86.7	--	--	--
Severe	45.0	57.0	57.0	45.0	48.8	50.1	41.1
Paleontology							
High	105.7	93.7	110.2	123.6	12.0	13.8	18.8
Moderate	10.0	37.0	27.0	--	19.8	12.3	--
Low	1.0	1.0	--	--	15.0	19.0	10.0
Negligible	5.0	--	2.5	7.5	2.0	5.0	12.8
Vegetation Types							
Cold Desert	72.1	78.2	103.2	95.2	12.0	15.0	13.8
Pinyon-Juniper	15.5	19.1	15.5	15.5	13.3	19.6	17.3
Forest	8.0	8.5	7.0	8.0	4.4	4.0	3.5
Mountain Brush	6.5	9.0	9.0	6.5	18.5	11.5	--
Cultivated	20.0	17.0	5.0	6.5	0.6	--	6.5
Riparian (number of crossings)	5	3	8	9	1	2	2
Threatened and Endangered Species Habitat	12.5	19.5	45.0	41	2.0	2.2	2.2
Animal Life Habitat[b]							
Terrestrial							
Antelope	4.0	4.0	4.0	4.0	--	--	--
Deer	51.5	40.0	45.0	38.0	38.0	40.3	29.3
Elk	23.0	40.0	40.0	23.0	35.2	37.5	8.8
Sage Grouse	16.5	36.0	48.5	22.0	4.0	4.0	--
Turkey	--	--	--	--	1.2	1.2	--
Golden Eagles	5.0	--	--	5.0	--	--	0.5
Wild Horse	--	--	59.0	42.5	--	--	--
Waterfowl	9.0	3.0	14.0	18.0	--	--	--
Moose	--	--	--	--	--	--	
Threatened and Endangered							
Whooping Crane	2.0	2.0	--	--	--	--	--
Bald Eagle	5.0	2.0	14.0	16.0	--	--	--
Aquatic (No. of crossings)							
Threatened and Endangered	1	1	2	2	--	--	--
Trout							
Critical	1	--	--	1	--	--	--
High Priority	--	--	--	1	--	1	1
Substantial	2	4	4	1	2	2	3
Limited	--	--	--	1	--	--	--
Channel Catfish							
Limited	--	1	1	1	--	--	--
Small Fishery	--	--	--	--	--	--	--
Cultural Sites							
Eligible for Listing	--	--	--	--	--	--	--
Not Eligible	--	--	4	1	2	2	--
Visual Resource Management							
Scenic Quality							
A	0.0	0.0	0.0	0.0	0.0	0.0	0.0
B	37.5	61.0	60.5	24.5	29.6	24.5	37.0
C	84.2	70.7	79.2	107.2	20.0	25.6	4.1
Visual Zone							
F	40.5	53.0	71.2	72.7	11.0	27.1	38.1
M	50.0	57.5	48.5	29.0	10.0	10.5	3.0
B	20.7	10.7	20.0	30.0	21.6	5.5	0.0
SS	10.5	10.5	0.0	0.0	7.0	7.0	0.0

TABLE 3-27

Transmission System Affected Environment[a]
Section A
Bonanza Unit 1 Routing Alternatives

Bonanza or Rangely Plant Site			Bonanza--138-kV System via.		
Price Canyon-Water Hollow--345-kV via:				Bonanza-Rangely	Bonanza-Rangely
Eccles Canyon	Sowers Canyon/Dairy Fork	Sowers Cyn/Thistle Cyn	Bonanza-Vernal	Little Bonanza	Mellon Hill
--	--	--	25.5	23.7	25.7
39.5	54.5	55.0	--	--	--
19.5	8.5	21.5	4.2	21.2	10.0
20.0	22.2	23.7	17.0	2.5	15.7
--	--	3.5	4.3	--	--
--	--	6.3	--	--	--
17.5	14.0	24.3	18.6	16.2	25.7
--	2.7	14.2	4.6	7.5	--
12.0	8.0	6.5	--	--	--
9.0	21.8	10.0	--	--	--
--	5.0	--	2.3	--	--
1.0	1.0	4.0	0	3	0
0.7	1.7	2.5	8.0	6.2	3.0
--	--	--	4.0	4.0	4.0
6.0	48.7	54.8	--	--	--
6.0	46.0	52.8	--	--	--
--	25.0	25.0	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	6.2	2.0
--	--	--	1.0	1.0	--
8.0	--	--	--	--	--
--	--	--	--	--	--
--	--	--	1.0	1.0	--
4	3	--	1	1	1
--	--	--	--	--	--
1	--	--	--	--	--
3	3	1	--	--	--
--	--	3	--	--	--
--	--	--	--	--	--
--	--	--	--	--	1
--	--	--	--	--	--
--	--	--	--	1	--
1.9	0.0	49.5	0.0	0.0	0.0
26.6	50.8	5.5	4.0	4.5	2.5
11.0	0.7	--	21.5	13.0	23.2
14.8	21.0	29.0	16.3	0.0	15.7
5.9	6.0	6.0	2.0	11.0	4.0
7.0	18.8	14.3	7.2	3.0	3.5
11.8	5.7	5.7	0.0	3.5	2.5

(continued)

TABLE 3-27, Section A (continued)

Resource Category	Bonanza to Tank Hollow--345-138-kV Combined System via.				Bonanza or Rangely Plant Site Tank Hollow to Mona--345-kV System via		
	Upalco-Fruitland	Upalco-Sowers	Castle Pk.-Sowers	Castle Pk.-Fruitland	Dairy Fork	Thistle Canyon	Utah Valley
Visual Resource Management (continued)							
Sensitivity							
H	22.0	8.0	20.5	25.0	0.0	0.0	22.3
M	64.2	62.5	31.0	63.0	32.1	43.6	18.8
L	21.5	61.2	88.2	43.7	17.5	6.5	0.0
Existing Contrast							
L	58.7	52.2	74.0	70.0	32.6	14.5	0.0
M	63.0	71.5	55.2	44.7	16.0	26.1	6.8
H	0.0	8.0	10.5	17.0	1.0	9.5	34.3
Visual Resource Management Zone							
I	0.0	0.0	0.0	0.0	0.0	0.0	0.0
II	16.5	0.0	0.0	6.0	0.0	0.0	19.3
III	14.0	31.5	36.5	22.0	12.6	20.1	17.0
IV and V	93.0	100.2	103.2	103.7	37.0	30.0	4.8
Highway Crossings							
Number	6	6	3	3	3	4	4
AOT	7,870	1,120	7,130	5,840	9,775	14,775	18,215
Recreation Sites (existing visual contrast)							
Starvation Lake State Park	M	--	--	--	--	--	--
Brough Reservoir	L	L	--	--	--	--	--
Scenic Loop Road (proposed)	L	--	--	L	--	--	--
Roadless Area (proposed)	L	--	--	L	--	--	--
Summer Homes	--	M	M	--	--	--	--
Gooseberry Campground	--	--	--	--	--	--	--
Lower Gooseberry Res.	--	--	--	--	--	--	--
Skyline Orive	--	--	--	--	--	--	--
Snow Play Area	--	--	--	--	--	--	--
Strawberry Recreation Complex	H	--	--	H	--	--	--
Land Use							
Crosses Rangely Recreation and Public Purposes Application	--	--	5	5	--	--	--
Commercial Timber	--	--	--	--	--	--	--
Off-road Vehicle Closure Area	8.0	--	--	8.0	--	--	--
Existing Coal Operations	--	--	--	--	--	--	
Urban Area	--	--	--	--	1.0	1.0	6.0

---

[a] All numbers indicate miles of transmission right-of-way (ROW) except where noted.

[b] The area is historic habitat for the peregrine falcon (endangered) and blackfooted ferret (endangered), however, they are not presently found in the project area.

[c] Not available.

TABLE 3-27, Section A (continued)

Bonanza or Rangely Plant Site			Bonanza--138-kV System via.		
Price Canyon-Water Hollow--345-kV via:				Bonanza-Rangely	Bonanza-Rangely
Eccles Canyon	Sowers Canyon/Dairy Fork	Sowers Cyn/Thistle Cyn	Bonanza-Vernal	Little Bonanza	Mellen Hill
22.2	6.0	6	0.0	0.0	1.5
11.5	43.5	43.5	9.8	11.5	11.7
5.8	2.0	5.5	15.7	6.0	12.5
22.1	26.5	11.2	7.2	8.5	12.5
17.4	19.0	29.0	11.0	9.0	13.2
--	6.0	14.8	7.3	0.0	0.0
--	0.0	--	0.0	0.0	0.0
10.7	0.0	--	0.0	0.0	0.0
5.0	27.0	49.3	3.0	0.0	3.0
23.8	24.5	11.2	22.5	17.5	22.7
3	2	1	3[c]	1	2
5,785	5,850	4,075		285	2,285
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
M	--	--	--	--	--
M	--	--	--	--	--
L	--	--	--	--	--
L	--	--	--	--	--
L	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	2	--
5.7	--	--	--	--	--
--	--	--	--	--	--
1.0	--	--	--	--	--
--	--	--	--	2.0	3.0

(continued)

TABLE 3-27 (continued)

Section B
Rangely Unit 1 Routing Alternatives

	Rangely to Tank Hollow--345-138-kV Combined System via.				Rangely--138-kV System	
Resource Category	Upalco-Fruitland	Upalco-Sowers	Castle Pk.-Sowers	Castle Pk-Fruitland	Rangely-Vernal	Rangely-Rangely Sub.
Soil Erosion Hazard						
Moderate	107.4	105.4	119.7	122.7	54.3	15.5
Severe	45.0	57.0	57.0	45.0	--	--
Paleontology						
High	105.7	93.7	110.2	124.2	26.0	--
Moderate	10.0	37.0	27.0	--	24.0	15.5
Low	1.0	1.0	--	--	4.3	--
Negligible	5.0	--	2.5	7.5	--	--
Vegetation Types						
Cold Desert	81.9	87.9	122.3	114.3	29.0	8.0
Pinyon-Juniper	30.0	34.0	30.5	30.5	17.0	7.5
Forest	9.0	9.5	7.0	8.0	1.0	--
Mountain Brush	11.5	14.0	11.9	9.4	5.0	--
Cultivated	20.0	17.0	5.0	6.5	2.3	--
Riparian (No. of crossings)	5	3	13	14	--	3
Threatened and Endangered Species Habitat	9.5	19.5	43.5	58.0	2.0	--
Animal Life Habitat						
Terrestrial						
Antelope	0.0	0.0	4.0	4.0	0.0	--
Deer	72.9	63.4	64.0	45.5	20.0	--
Elk	23.0	40.0	40.0	23.0	--	--
Sage Grouse	26.5	46.0	64.0	44.0	10.0	15.5
Golden Eagle	5.0	--	--	5.0	--	--
Wild Horse	16.0	16.0	63.0	46.0	16.0	--
Waterfowl	10.0	3.9	24.0	28.0	1.0	9.0
Threatened and Endangered						
Whooping Crane	2.0	2.0	--	--	--	--
Bald Eagle	7.0	2.0	24.0	26.0	1.0	9.0
Aquatic (No. of crossings)						
Threatened and Endangered	2	2	4	4	1	1
Trout						
Critical	1	--	--	--	--	--
High Priority	1	--	--	--	--	--
Substantial	2	4	4	--	--	--
Channel Catfish						
Limited	--	1	1	--	--	--
Cultural Resources (No. of sites)						
Eligible to Listing	2	--	2	--	2	--
Not Eligible	1	1	1	1	1	--
Visual Resource Management						
Scenic Quality						
A	0.0	0.0	0.0	0.0	0.0	0.0
B	35.5	58.5	67.0	31.0	4.0	2.0
C	108.0	95.0	109.7	137.7	50.3	13.5
Visual Zone						
F	52.0	63.0	90.2	83.7	26.3	9.0
M	49.5	58.5	56.5	46.0	9.0	3.0
B	20.5	10.5	23.0	32.0	8.0	0.0
SS	21.5	21.5	7.0	7.0	11.0	3.5
Sensitivity						
H	36.0	22.0	23.5	29.0	14.0	4.0
M	63.5	60.0	47.5	79.5	11.8	7.0
L	44.0	71.5	105.7	60.2	28.5	4.5

(continued)

TABLE 3-27, Section 8 (continued)

	Rangely to Tank Hollow--345-138-kV Combined System via.				Rangely--138-kV System	
Resource Category	Upalco-Fruitland	Upalco-Sowers	Castle Pk.-Sowers	Castle Pk-Fruitland	Rangely-Vernal	Rangely-Rangely Sub.
Existing Contrast						
L	61.0	53.5	96.0	89.0	19.0	7.5
M	71.5	81.0	70.2	62.7	22.0	8.0
H	11.0	19.0	10.5	17.0	13.3	0.0
Visual Resource Management Zone						
I	0.0	0.0	0.0	0.0	0.0	0.0
II	16.5	0.0	3.5	9.5	0.0	3.5
III	29.0	43.5	38.0	24.5	18.0	2.5
IV and V	96.0	110.0	135.2	134.7	36.3	9.5
Highway Crossings						
Number	9	9	6	4	3	2
ADT	9,890	13,520	9,095	4,765	[c]	1,680
Recreation Sites (existing visual contrast)						
Summer Homes	--	M	M	--	--	--
Starvation Lake State Park	M	--	--	--	--	--
Brough Reservoir	L	L	--	--	--	--
Scenic Loop Road (proposed)	L	--	--	L	--	--
Roadless Recreation Area (proposed)	L	--	--	L	--	--
Strawberry Recreation Complex	H	--	--	H	--	--
Land Use						
Off-road vehicle closure areas	8.0	--	--	8.0	--	--
Crosses Rangely Recreation and Public Purposes Act Application	--	--	--	--	--	5.0
Urban Area	--	--	4.0	4.0	--	2.0

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[a] All numbers indicate miles of transmission right-of-way (ROW) except where noted.

[b] The area is historic habitat for the peregrine falcon (endangered); and blackfooted ferret (endangered), however, they are not presently found in the project area.

[c] Not available.

(continued)

TABLE 3-27 (continued)

Section C
Unit 2 Routing Alternative

	Bonanza-Mountain Green 345-kV via			Rangely-Mountain Green 345-kV via			Bonanza or Rangely 345-kV	
Resource Category	Lone Tree	Upalco-Fruitland	Castle Pk.-Fruitland	Lone Tree	Upalco-Fruitland	Castle Pk.-Fruitland	Mountain Green-Ben Lomond	Mona-Ben Lomond
Soil Erosion Hazard								
Slight	--	--	--	--	--	--	5.0	59.7
Moderate	78.4	122.6	120.1	107.2	153.3	157.1	17.0	40.0
Severe	103.5	62.0	62.0	103.5	62.0	62.0	2.0	14.0
Paleontology								
High	51.2	121.6	130.1	73.0	143.4	149.1	2.0	--
Moderate	62.0	22.0	12.0	69.0	30.9	30.0	--	18.5
Low	41.7	9.0	8.0	41.7	9.0	8.0	17.0	95.2
Negligible	27.0	32.0	32.0	27.0	32.0	32.0	5.0	--
Vegetation Types								
Cold Desert	97.3	86.1	101.7	107.7	95.9	120.8	12.5	21.5
Pinyon-Juniper	24.6	23.1	23.5	37.0	38.0	38.5	--	3.0
Forest	40.0	25.0	25.0	41.0	26.0	25.0	5.0	--
Mountain Brush	10.0	25.9	25.9	15.0	30.9	28.8	6.5	--
Culivated	10.0	24.5	6.0	10.0	24.5	6.0	--	78.6
Riparian (No. of crossings)	5	6	7	5	4	14	3	--
Threatened and Endangered Species Habitat	17.0	9.5	40.0	12.0	8.5	38.5	--	--
Wet Meadow (marsh)	12	--	--	12	--	--	--	(10.5)
Animal Life Habitat								
Terrestrial								
Antelope	4.0	4.0	4.0	0	0	4.0	--	--
Deer	50.7	94.4	80.9	60.7	115.8	88.4	8.0	7.0
Elk	65.7	65.9	65.9	65.7	65.9	65.9	8.0	7.0
Moose	56.2	83.8	83.8	56.2	83.8	83.8	--	--
Sage Grouse	38.0	65.4	64.0	48.0	74.5	79.5	--	--
Sharptailed Grouse	--	--	--	13	--	--	--	--
Golden Eagle	--	5.0	5.0	--	5.0	5.0	--	--
Raptor	--	--	--	--	--	5.0	5.0	--
Wild Horse	--	--	42.5	16.0	16.0	46.5	--	--
Waterfowl	27.0	18.5	27.5	27.0	19.4	37.5	--	15.0
Threatened and Endangered								
Whooping Crane	--	2.0	--	--	2.0	--	--	--
Bald Eagle	1.0	5.0	14.0	1.0	5.0	24.0	--	--
Aquatic (No. of crossings)								
Threatened and Endangered	1	1	2	1	2	4	--	--
Trout								
Critical rare	3	--	--	3	--	--	--	--
Critical	4	4	4	4	4	4	2	--
High Priority	4	5	5	4	5	5	5	--
Substantial	2	10	9	2	10	9	--	2
Unclassified	10	--	--	10	--	--	--	--
Limited	--	--	1	--	--	1	--	3
Cultural Resources (No. of sites)								
Eligible for Listing	1	--	--	1	2	--	--	--
Not Eligible	2	--	1	2	1	1	--	--
Visual Resource Management								
Scenic Quality								
A	13.5	0.0	0.0	13.5	0.0	0.0	--	--
B	59.0	88.4	75.4	59.0	86.4	81.9	3.0	--
C	109.4	96.2	106.7	138.2	128.9	137.2	21.0	113.7
Visual Zone								
F	54.7	78.9	108.6	64.7	108.8	125.1	24.0	87.7
M	59.7	70.5	39.5	70.7	60.5	50.0	--	26.0
B	35.5	10.7	20.0	36.3	10.5	23.0	--	--
SS	32.0	24.5	14.0	39.0	35.5	21.0	--	--

(continued)

TABLE 3-27, Section C (concluded)

	Bonanza-Mountain Green 345-kV via			Rangely-Mountain Green 345-kV via			Bonanza or Rangely 345-kV	
Resource Category	Lone Tree	Upalco-Fruitland	Castle Pk.-Fruitland	Lone Tree	Upalco-Fruitland	Castle Pk.-Fruitland	Mountain Green-Ben Lomond	Mona-Ben Lomond
Sensitivity								
H	39.5	17.5	8.0	53.5	31.5	12.0	3.0	53.0
M	42.5	112.4	111.4	44.5	121.3	129.9	21.0	42.7
L	99.9	54.7	62.7	111.0	62.5	77.2	--	18.0
Existing Contrast								
L	107.9	61.2	70.0	119.7	65.0	90.0	0.0	5.0
M	63.0	123.4	95.1	74.0	139.3	112.1	0.0	18.0
H	11.0	0.0	17.0	17.0	11.0	17.0	24.0	90.7
Visual Resource Management Zone								
I	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
II	24.0	14.5	2.0	24.0	14.5	5.5	3.0	0.0
III	38.5	61.5	67.5	53.5	76.5	70.0	0.0	53.0
IV and V	119.4	108.6	112.6	133.2	124.3	143.6	21.0	60.7
Highway Crossings								
Number	7	4	6	6	13	13	2	19
ADT	13,025	11,780	14,800	13,005	11,780	11,780	11,260	125,395
Recreation Sites (exising visual contrast)								
Lost Creek Res.	L	--	--	L	--	--	--	--
Starvation Lake State Park	--	M	--	--	M	--	--	--
Red Cloud Loop Rd.	L	--	--	L	--	--	--	--
Strawberry Lake State Park	--	M	M	--	M	M	--	--
Rockport Lake and C.G.	--	L	L	--	L	L	--	--
Merkley Park	L	--	--	L	--	--	--	--
Echo Reservoir	--	M	M	--	M	M	--	--
Remember the Maine C.P.	L	--	--	L	--	--	--	--
Brough Reservoir	--	L	--	--	L	--	--	--
Brown Lake and C.G.	L	--	--	L	--	--	--	--
Half Moon Park Summer Homes	L	--	--	L	--	--	--	--
Proposed High Uintas Wilderness Area	L	--	--	L	--	--	--	--
Land Use								
Cross Rangely Recreation and Public Purposes Act Application	--	--	--	--	--	7.0	--	--
Urban Area	6.0	--	--	6.0	--	4.0	19.0	43.7
Commercial timber areas.	29.5	--	--	29.5	--	--	--	--
U.S. Forest Service Off-road Vehicle Closure Area	12.0	--	--	12.0	--	--	--	--
Conflict with Vernal Planning Unit Land Use Plan	29.5	--	--	29.5	--	--	--	--

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[a] All numbers indicate miles of transmission right-of-way (ROW) except where noted.

[b] The area is historic habitat for the peregrine falcon (endangered) and blackfooted ferret (endangered); however, they are not presently found in the project area.

[c] Not available.

MINOR TEXT REVISIONS TO THE LINEAR PROFILE KEY AND SEGMENTS

The following items should be added to the linear profile key (page 217 of the Draft EIS):

Under the subdivision Planning Unit By Name, add A.O.S.C.: Area of Special Concern.

Under the subdivision Special Animals, add: F Black-footed Ferret (potential habitat).

Bonanza Site, Railroad/off-road Truck Haul (page 219 of the Draft EIS) T&E Plants/habitat should change from 6 to 0; Soil Types should change from 2 to 6; Erosion Hazard should change from 0 to 2.

Bonanza Site, railroad Coal Delivery Conveyor (page 219 of the Draft EIS) Special Animals should change from 0 to F, Black-footed Ferret (potential habitat).

Rangely Site, Overland Conveyor (page 219 of the Draft EIS), Soil Types should change from 0 to 6.

Segment 11 (page 225 of the Draft EIS), VRM class between miles 11.9 and 19 should change from III to IV; miles 24 and 25 should change from II to III.

Segment 35 (page 233 of the Draft EIS), Soil types between miles 21 and 40 should change from 6 to 2; miles 40 to 45 should change from 2 to 4; miles 45 to 48.5 should change from 4 to 8.

Segment 19 (page 227 of the Draft EIS), Land Use between miles 1 to 20.2 should change from Forest to Range; miles 20.2 to 65 should change from Range to Forest.

CHAPTER 4
ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This chapter describes significant environmental consequences that would be expected from construction and operation of the Moon Lake power plant project alternatives.

An impact is discussed if: (1) it is considered controversial; (2) it is of high public interest or concern; (3) it significantly affects the human environment; or (4) the subject of the impact is protected by law.

To facilitate the comparison of alternatives, the direct and indirect impacts and their significance are presented in three major sections. The first section describes the environmental impacts that would be expected from construction and operation of the power plant and raw material supply system alternatives. This section also includes an analysis of the socioeconomic impacts of the project-related population. The second section describes the projected environmental impacts related to the recreational activities of the project-induced population within a secondary zone of influence. The third section describes the environmental impacts that could be expected from construction and operation of transmission system alternatives.

At the conclusion of this chapter are site specific means to mitigate the adverse environmental impacts. A summary comparative analysis table (2-13) of unavoidable adverse impacts that would be expected even with application of specific mitigating measures is found at the back of Chapter 2 in this Final EIS. Included in the summary table are descriptions of the relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity; and irreversible or irretrievable commitments of resources which would be involved should the project be implemented. Energy requirements, conservation potential, and comparative financial costs of the various project alternatives are presented in Appendix 20 in this Final EIS.

ENVIRONMENTAL IMPACTS OF POWER PLANT SITES AND RAW MATERIAL SUPPLY SYSTEM ALTERNATIVES

CLIMATE AND AIR QUALITY

CLIMATE

The development of ground fog within a few hundred yards of mechanical-draft cooling towers is common in certain localities (Hanna, 1978). Because of the frequent natural occurrence of fog in the Uinta Basin during the winter months, this phenomena would be expected to occur from the Moon Lake power plant in the vicinity of the cooling towers.

Burning of coal and other fossil fuels releases large quantities of carbon dioxide (CO_2) into the atmosphere. CO_2 admits short wavelength (incoming solar) radiation and absorbs longer wavelength (outgoing thermal) radiation, leading to warmer temperatures near the earth's surface and changing climates as atmospheric CO_2 levels increase.

Although the contribution from the Moon Lake power plant would be very small compared to worldwide CO_2 emissions, burning of coal at the proposed plant would minutely increase atmospheric CO_2 concentrations.

AIR QUALITY

Estimated Emissions

The discharge of pollutants into the atmosphere would be an adverse impact. The estimated plant emissions of sulfur dioxide (SO_2), total suspended particulates (TSP), and nitrogen oxides (NOx) are shown in table 4-1. Particulate emissions from the Deserado Mine would be about 180 tons per year.

Standards

Ground-level concentrations of SO_2, particulates, and NOx were estimated by mathematical dispersion modeling performed by Burns and McDonnell (1980f) and EPA (1981). The Environmental Protection Agency (EPA) Valley Model (EPA, 1977a) in the screening mode was used with hypothetical worst-case meteorological conditions assumed for 24-hour calculations. No adequate annual average emission concentrations for comparison with standards were calculated for a plant at either site because no on-site data has been collected and no existing data has been shown to be representative. However, because the 24-hour standards are generally more stringent than either the annual average or 3-hour standards, it can be assumed that if the 24-hour standards were met, the 3-hour and annual average standards would also be met.

In the absence of on-site data, the Utah Bureau of Air Quality considers data collected at the Ua-Ub oil shale tracts to be representative for annual average modeling input.

New Source Performance Standards (NSPS)

Table 4-2 presents the State and Federal NSPS and the expected emissions from the proposed Moon Lake power plant at either the Bonanza or Rangely sites. Plant emissions would be less than the allowable limits for SO_2 and NOx, and equal the limits for particulates.

Prevention of Significant Deterioration (PSD) and Colorado Category I Increments

Maximum calculated increased ground-level concentrations of SO_2 and particulates at Dinosaur National Monument (Dinosaur) Headquarters are given in table 4-3.

In order to meet the Colorado Category I increments at Dinosaur, modeling results show that 93.6-percent SO_2 control would be needed from a plant at the Bonanza site and 94.9-percent SO_2 control would be needed from a plant at the Rangely site. Slightly higher SO_2 control was determined to be needed at the Rangely site because it is closer to Dinosaur than the Bonanza site.

It should be pointed out that while the model used does present an intensity of impact estimate, it does not include an analysis of impact occurrence frequency. The model simply assumes stable, light wind speed conditions with a wind direction that would transport the plume directly toward the area of interest for 6 hours in a 24-hour period. Figure 3-1 is a plume level wind

TABLE 4-1

Estimated Plant Emissions

	Estimated Emission Rate[a] (tons/day)	
	Bonanza Site	Rangely Site
Sulfur Dioxide	5.0	4.0
Particulates	2.9	2.9
Nitrogen Oxides	53.5	53.5

[a] Assumes heat input to boiler of 4,055 X 10^6 Btu/hr. at 100-percent load, average sulfur content of 0.45-percent sulfur, SO_2 emission rates based on the amount of emission control necessary to meet Colorado Category I Increments at Dinosaur National Monument, and average heat content of 10,500 Btu/lb. Particulate emission estimates are rates allowed by the New Source Performance Standards (NSPS). NOx rates are based on the Best Available Control Technology determination for unit 1 at Bonanza given in the PSD permit.

TABLE 4-2

Comparison of Predicted Emissions and Applicable New Source Performance Standards

	Particulates	Sulfur Dioxide	Nitrogen Oxides
Proposed Generating Station Control Equipment[a]	Fabric-Filter Baghouse	Wet-Limestone Scrubber	Boiler Design and Operation
Emission Rate (lb/MBtu)	0.03	0.052 Bonanza Site[b] 0.041 Rangely Site[b]	0.55[c]
NSPS[d] Emission Rate (lb/MBtu)	0.03	0.60	0.60[c]

Source: Burns & McDonnell, 1980f and EPA, 1981.

[a] Control equipment designed to be Best Available Control Technology (BACT) as required by Prevention of Significant Deterioration (PSD) regulations (40 CFR 52.21).

[b] Assuming average grade coal with 0.45-percent sulfur content, heating value of 10,500 Btu/lb, and SO_2 control needed to meet Colorado Category I increments.

[c] Emissions based on the determination of Best Available Control Technology for unit 1 at Bonanza.

[d] 40 CFR 60.

TABLE 4-3

Comparison of Maximum Calculated Increased Ground-Level Concentrations of SO_2 and Particulates to Allowable Increments at Dinosaur National Monument Headquarters

	(μg/m³)			
Pollutant	Bonanza Site	Rangely Site	Colorado Category I Increments	PSD Class I Increments[a]
Sulfur Dioxide[b]				
3 hour	[c]	[c]	25.0	25.0
24 hour[d]	5.0	5.0	5.0	5.0
Annual	[e]	[e]	2.0	2.0
Particulates				
24 hour[d]	2.9	3.6	[f]	10.0
Annual	[e]	[e]	[f]	5.0

Source: Burns and McDonnell, 1980f.

[a] Dinosaur National Monument is presently a PSD Class II area.

[b] SO_2 emission rates of 52.6 grams per second (g/s) at Bonanza and 42.4 g/s at Rangely necessary to meet Colorado Category I increment were assumed; the percentage SO_2 control required is 93.6 percent at Bonanza and 94.9 percent at Rangely.

[c] The Valley Model in the screening mode does not estimate 3-hour concentrations. If the 24-hour increment is met, it is assumed that the 3-hour increment is also met, because the 3-hour increment is generally less restrictive.

[d] Concentrations were calculated by using the EPA screening process which utilizes the EPA Valley Model, F stability, a wind speed of 5.5 mph, winds blowing directly toward the headquarters, and average grade coal.

[e] Representative meteorological data not available.

[f] Colorado does not have Category I increments for particulates.

rose constructed from pibal data collected from October 1976 to January 1978 at the Ua-Ub oil shale tracts 5 miles south of Bonanza. Southwest winds, which would be necessary to transport the plume from a Bonanza plant to the Dinosaur Headquarters occurred about 8 percent of the time. East-southeast winds, which would transport the plume from a plant at the Rangely site to the Dinosaur Headquarters occurred only about 2 percent of the time.

Table 4-3 shows that if Dinosaur were reclassified to PSD Class I, then Class I particulate increments would not be violated by a plant at either site. Maximum estimated increased particulate and SO_2 concentrations in Class II areas are compared with PSD Class II incremental limitations in table 4-4, which shows that no Class II increments would be violated from a plant at either site.

Because very high SO_2 control was shown to be needed using the screening procedure, BLM requested EPA to do a feasibility study on obtaining the approximately 95-percent SO_2 control needed from a plant at either site. After reviewing materials submitted by Deseret, EPA stated,

> "Sustained performance at 95 percent control efficiency is not well documented at present. This lack of documentation is explained primarily by the general absence of State or Federal performance standards requiring that degree of control, and by the lack of continuous emission monitoring data from existing plants with sulfur dioxide controls. While sustained 95-percent control has not been well-documented and appears to be at the upper limit of existing control technology, we have no reason to conclude that it cannot be achieved." (EPA, 1980).

The State of Utah Air Quality Bureau also reviewed the material submitted by Deseret Generation and Transmission Cooperative (Deseret) and concluded,

> "...There is sufficient evidence that certain control configurations utilizing specific reagents result in 95+ percent removal if operated and maintained properly. However, without further detailed plans and specifications for the control equipment and additional removal techniques for the Moon Lake project, it is impossible to ascertain the actual SO_2 removal capacity that could be expected." (Utah Bureau of Air Quality, 1980).

EPA has issued a PSD permit for two 400-MW units at the Bonanza site (EPA, 1981). The State of Utah Bureau of Air Quality issued an intent to approve notice in March 1981 for two units at Bonanza (Salt Lake Tribune, Salt Lake City, Utah). Final action by the Utah Bureau of Air Quality could occur in April, 1981.

If the plant were to be built at the Rangely site, Deseret would submit another PSD application to EPA for the Rangely site and would apply to the State of Colorado for an air quality permit.

National Ambient Air Quality Standards (NAAQS)

The NAAQS, less stringent than PSD limitations, represent the upper limit on allowable ground-level pollutant concentrations. A comparison of the predicted maximum ground-level concentration produced by a generating station at the Bonanza and Rangely sites (including background concentrations) and the NAAQS is presented in table 4-4. The background levels were measured near Vernal, Utah by the Utah Bureau of Air Quality during 1978.

The total ground-level concentrations from the proposed plant and background levels would meet all NAAQS.

Particulate modeling for the Deserado Mine showed a 24-hour maximum increase of 35 $\mu g/m^3$ and an annual average increase of 8.4 $\mu g/m^3$. These values comply with the PSD limitations and the NAAQS for particulates (Burns and McDonnell, 1979).

Acid Precipitation and Dry Deposition

The formation of acid in the atmosphere is not well understood at this time, although it does occur. Research into this phenomena is ongoing. The proposed Moon Lake power plant would introduce acids into the environment by emitting SOx, NOx, and CO_2 which can react with atmospheric water to form sulfuric acid (H_2SO_4), nitric acid (HNO_3), and carbonic acid (H_2CO_3). In addition, hydrochloric acid (HCl) may be directly emitted (EPA, 1979a). Observed and potential environmental effects of acid precipitation and dry deposition are discussed in Appendix 21 of the Draft EIS.

Acid production resulting from the proposed Moon Lake power plant would be small, but would be part of a cumulative effect which could become significant when combined with increased emissions from future energy development, industrial activity, and population growth in the Western United States.

Trace Elements

The Moon Lake power plant would emit a variety of trace elements into the atmosphere during power plant operation.

Long-term accumulation of trace elements would have a potential negative impact on the environment if accumulated in sufficient quantities, but distribution pathways through the ecosystem are not well understood. No modeling to project trace element emissions has been done for this project. However, the proposed plant would make a relatively small contribution to existing levels during its operating life (Burns and McDonnell, 1979b).

The PSD regulations (*Federal Register*, August 7, 1980) require PSD review, including BACT determination, and air quality analysis for all pollutants to which the National Emission Standards for Hazardous Air Pollutants (NESHAPS) apply, as well as for NAAQS criteria pollutants, unless emission rates would be below minimum levels set by EPA. Under these regulations, the Moon Lake power plant would be subject to review for beryllium, lead, fluorides, and possibly mercury and asbestos. Preconstruction monitoring of all pollutants subject to review would be required unless the applicant demonstrates that either existing concentrations in the impact area or its projected impacts are less than the minimum concentrations set by EPA. However, because the PSD permit for the Bonanza site was considered by EPA to be complete prior to August 7, a plant at Bonanza would not be subject to the August 7, 1980 requirements. If the plant were to be built at Rangely, the August 7 regulations would apply.

Visibility

The Secretary of the Interior has, in accordance with Section 164(d) of the Clean Air Act, identified Dinosaur as an area where air quality related

TABLE 4-4

Maximum Calculated Ground-Level Concentrations, Class II Incremental Limitations, and National Ambient Air Quality Standards[a] ($\mu g/m^3$)

	Bonanza Site	Rangely Site
Present Background Levels[b]		
Sulfur Dioxide		
3-hour	26.6	26.6
24-hour	26.6	26.6
Annual	0.0	0.0
Particulates		
24-hour	105.0	82.0[f]
Annual	31.0	24.0[f]
Nitrogen Dioxide		
Annual	17.2	17.2
Predicted Plant Increment Increase[c]		
Sulfur Dioxide		
3-hour	[d]	[d]
24-hour	10.0	22.7
Annual	[e]	[e]
Particulates		
24-hour	36.6	16.4
Annual	[e]	[e]
Nitrogen Dioxide		
Annual	[e]	[e]
Allowable Class II Increment		
Sulfur Dioxide		
3-hour	512.0	512.0
24-hour	91.0	91.0
Annual	20.0	20.0
Particulates		
24-hour	37.0	37.0
Annual	19.0	19.0
Nitrogen Dioxide		
Annual	None	None

(continued)

TABLE 4-4 (concluded)

	Bonanza Site	Rangely Site
Predicted Total Concentration		
Sulfur Dioxide		
3-hour	[d]	[d]
24-hour	36.6	49.3
Annual	[e]	[e]
Particulates		
24-hour	136.6	98.4
Annual	[e]	[e]
Nitrogen Dioxide		
Annual	[e]	[e]
NAAQS		
Sulfur Dioxide		
3-hour	1,300.0	1,300.0
24-hour	365.0	365.0
Annual	80.0	80.0
Particulates		
24-hour	150.0	150.0
Annual	60.0	[e]
Nitrogen Dioxide		
Annual	100.0	100.0

Source: Modeling for Rangely site: Burns & McDonnell, 1980a. Background data: Utah Bureau of Air Quality, 1979 and OSM, 1981. Modeling for Bonanza site: EPA, 1981.

[a] All concentrations represent average in micrograms per cubic meter over the time period specified.

[b] Background concentrations measured at Naples, Utah by Utah Bureau of Air Quality.

[c] Concentrations predicted to occur at point closest to plant where stack emissions plume impacts elevated terrain. SO_2 emission rates controlled to meet Class I increments at Dinosaur.

[d] The Valley Model in the screening mode does not estimate 3-hour concentrations.

[e] Representative meteorological data not available to determine annual concentrations.

[f] Based on 8 months of data collected at Deserado Mine site.

values (including visibility) are important attributes of the area (June 25, 1980 Federal Register), and the National Park Service (NPS) has recommended to Congress that the Monument be redesignated to PSD Class I.

Areas designated as Colorado Category I (including Dinosaur) are not presently afforded visibility protection under Colorado law. If all or part of Dinosaur were redesignated as Federal Class I by the State of Colorado and/or Utah, it would be given visibility protection under Section 165(d) of the Clean Air Act. Until such time as redesignation occurs, no restraints apply to either plant site. However, the State of Utah has indicated that they would not consider Dinosaur for redesignation to PSD Class I. Section 165(e)(3)(b) of the Clean Air Act, regarding PSD permits, requires a visibility analysis to be performed as a preconstruction requirement. Systems Application, Incorporated (SAI), conducted a visibility assessment for the Bonanza site. Burns and McDonnell used the SAI model to assess visibility impacts for the Rangely site.

After consultation with NPS staff, the Dinosaur Visitor Center 7 miles north of Jensen, Utah and the Dinosaur Headquarters Scenic Drive Overlook, 7 miles north of the Town of Dinosaur, Colorado were chosen as the viewing points because of the concentration of visitors at these locations.

Results of Visibility Modeling

A summary of the modeling results is given here. A more detailed and technical discussion on model assumptions and predicted impacts appears in Appendix 22 of the Draft EIS.

Bonanza Site

Under adverse meteorological conditions, a highly visible yellow-brown plume from nitrogen oxide emissions would be observed from the Dinosaur Visitor Center. Reduction in visual range would generally be less than 5 percent. Impacts at the scenic drive overlook would be less severe with visual range reduction for most views of less than 2 percent and a yellow-brown plume would be faintly visible.

Rangely Site

A highly visible yellow-brown plume would be seen by observers at the visitors center during adverse meteorological conditions. Visual range reduction would generally be less than 5 percent. Impacts at the scenic drive overlook would be somewhat less severe with a moderately discolored yellow-brown plume visible and visual range reduction for most viewing angles of less than 5 percent.

Frequency of Visibility Impact

The predicted intensity of impacts at the visitor center would be about equal for Rangely and Bonanza, while impacts at the scenic drive overlook would be somewhat more intense with a Rangely plant than with a Bonanza plant. The frequency of occurrence of impacts to visibility at Dinosaur would be greater for a Bonanza plant than for a Rangely plant.

The conditions modeled for the Bonanza and Rangely plants were assumed to represent worst-case conditions for impacts at the visitor center and scenic drive overlook. Other conditions, not modeled, with different stability, wind speeds, or wind directions, may also result in perceptible discoloration with a frequency of occurrence that cannot be determined with the analyses available.

The EPA, recognizing that Dinosaur is presently a Federal Class II area, considers the visibility requirements of the PSD regulation to have been met (EPA, 1980b).

Frequency of Visibility Impacts at the Bonanza Plant Site

The specific set of meteorological conditions modeled (E stability windspeed of 2.5 m/s and south winds) (see Appendix 13 of the Draft EIS for definition of terms) which identified the greatest impairment to visibility (a strongly discolored yellow-brown plume) at the Dinosaur Visitor Center occurred during 5 mornings out of 198 mornings for which data was available. If the frequency of occurrence of conditions encountered during the soundings is representative of yearly frequencies, then this condition would be expected to occur about 9 mornings per year. The set of conditions did not occur during any afternoons for which data was available.

Another set of specific conditions modeled (E stability, windspeed of 2.5 m/s and south-southeast winds) which indicated perceptible but less severe discoloration viewed from the visitor center occurred during 12 out of 198 morning soundings.

The condition modeled which identified impairment at the scenic drive overlook occurred during 1 morning out of 198 soundings.

The meteorological data upon which the frequency of occurrence analysis is based was collected from October 1976 to January 1978, a period of anomylous weather conditions (extreme drought). The frequency of adverse meteorological conditions may be considerably different during periods of more normal weather.

Frequency of Visibility Impacts at the Rangely Plant Site

The specific set of meteorological conditions modeled which indicated visibility impairment at the visitor center and scenic drive overlook occurred once during 198 morning soundings. The low frequency of occurrence is a result of the rarity of east-southeast winds needed to transport the plume from a Rangely plant past the visitor center and scenic drive overlook.

Cumulative Air Quality Effects of the Moon Lake Power Plant and Oil Shale Development

An issue identified in the scoping process was the question of whether the operation of the proposed Moon Lake power plant could hinder oil shale development by consuming air quality increments needed for development of oil shale. As previously mentioned, modeling results showed that the Moon Lake power plant would be expected to increase the maximum 24-hour average SO_2 concentration at the Dinosaur Headquarters by an amount equal to or less than the Colorado Category I incremental limitation of 5.0 $\mu g/m^3$. Increased annual average SO_2 concentrations at Dinosaur Headquarters would be an unknown amount but expected to be less that the Category I limitation of 2.0 $\mu g/m^3$.

The White River Shale project (WRSP) proposes oil shale development at the Ua-Ub tracts about 22 miles south-southwest of Dinosaur Headquarters and would result in emissions of SO_2. Because the wind directions required to transport plumes from the Bonanza site and the WRSP to Dinosaur Headquarters (southwest and south-southwest, respectively) vary by only one 22.5 degree sector, impaction of both plumes at Dinosaur Headquarters may occur during some 24-hour periods. However, lacking adequate meteorological data and with the uncertainties involved with emission rates, locations, and stack parameters associated with the WRSP, it cannot be determined whether the combination of the Moon Lake power plant and the WRSP (or any other potential SO_2 sources) would result in violations of the Colorado Category I 24-hour average standard for SO_2 at Dinosaur Headquarters.

Because wind directions needed to transport the plume from a plant at Rangely to Dinosaur Headquarters (east-southeast winds) are considerably different than directions required to transport plumes from the WRSP to Dinosaur Headquarters, and winds infrequently blow from the Rangely site toward the headquarters, possible cumulative impacts on a 24-hour or annual basis between the Moon Lake project and the WRSP are less likely to occur from a Rangely plant than for a Bonanza plant. The siting of coal-fired power plants is more flexible than siting of oil shale facilities. Thus, in order to avoid conflicts with oil shale development over increment consumption, selection of the power plant site with less potential to interact with oil shale development is desirable.

With the lack of representative meteorological data and the uncertainties involved with emissions data and the extent of development of oil shale and other SO_2 sources, it is not now possible to determine what portion of the annual increment at Dinosaur would be consumed by the Moon Lake project, oil shale, or any other SO_2 emission source.

In conclusion, while it is possible that SO_2 emissions from the Moon Lake power plant could interact with SO_2 emissions from oil shale development and other potential SO_2 sources, it is not possible to predict to what extent oil shale or other development might be hindered because of this issue. Colorado has not included particulate standards in the Colorado Category I limitations. Therefore, only PSD Class II limitations for particulate matter apply to Dinosaur. Recognizing that SO_2 levels from the Moon Lake power plant would approach Colorado Category I standards, while particulate increases from the Moon Lake project would be less than one-half of the PSD Class II limitations, it is expected that particulate increases from the Moon Lake project would not hinder oil shale development.

TOPOGRAPHY

Subsidence and related earth fractures may occur above underground mines as a result of the removal of one or more coal beds (USDI, BLM, 1978).

Table 4-5 lists the area that would be mined by longwall and room and pillar mining techniques at the Deserado Mine.

Longwall mining would produce the most subsidence with a more immediate occurrence. This is because the roof over the mined area is allowed to cave in as mining progresses. This method would be used in both B/C and D seams and would affect a total surface area of about 4,100 acres (figures 2-16 and 2-17). Subsidence from this method is predicted to average between 5 and 6 feet (Abel, 1980). Subsidence with the room and pillar method would be less than with longwall and would occur over a longer time period and average between 2 and 4 feet. This method would be used in both seams D and B/C and would affect 1,026 surface acres. Some tension cracks would probably reach the surface in the vicinity of mining sections. Changes could be abrupt and noticeable. There are no perennial streams or springs that could be affected by tension cracks. However, the Staley-Gordon Mine road (county route 65)

TABLE 4-5

Mining Techniques by Seam[a]

Year	Method	Acres
Coal Seam D		
1984-1989	Longwall	345
	Room and Pillar	1,110
1990-1996	Longwall	720
	Room and Pillar	950
Coal Seam B and B/C		
1993-1995	Room and Pillar	291
1997-2001	Longwall	1,030
	Room and Pillar	60
2002-2006	Longwall	510
2007-2011	Longwall	588
2012-2016	Longwall	895

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[a] With vertical overlap of the D and B/C seams, 4,106 surface acres would be undermined by the longwall method and 1,026 by the room-and-pillar method for a total subsidence area of 5,132 acres.

crosses disgonally over the area of expected subsidence. Subsidence may require continual maintenance once mining has occurred under the road and may require that the road be relocated along protective corridors of no subsidence.

The refuse disposal area would change the topography of about 600 acres in the area. Some of the piles would approach 40 feet and would especially be out of character with the landscape because they are located in a broad valley. Geotechnical investigation of the piles indicate that each pile would be stable and have a safety factor greater than 1.5 as required by OSM.

GEOLOGY AND PALEONTOLOGY

Table 4-6 shows the acreage of paleontologically important geologic formations that could be disturbed by the project. Under each alternative, some important and useful fossils could be lost to the scientific community. Fossils are important in the interpretation of earth history and the evolution of living organisms. The potential loss is unquantifiable, but would be greatest in those formations having high and moderate probabilities of important fossil occurrence.

SOILS

The acreages which would be disturbed and occupied by the various project alternatives are listed in table 2-1 of the Draft EIS. Localized erosion would occur on disturbed areas. Due to the localized nature of soil disturbance, a slow, negative unquantifiable amount of secondary impacts to off site soils, water quality, or other resources is expected. The existing horizon structure of the soil would be destroyed as the various horizons are mixed. This could enhance the selenium problems in areas which could affect reclamation potential.

WATER RESOURCES

SURFACE WATER

The potential reductions in flow of the Green and White Rivers and the percent of the yield of the Utah White River, Taylor Draw, and Wolf Creek Reservoirs that would be utilized by the Moon Lake project are shown in table 4-7. In the analysis below, the impacts on salinity in the Green River are based on average annual flow since 1963 (after Flaming Gorge Dam began operations) and water quality as tested at Jensen, Utah in 1977. The impacts to the White and Colorado Rivers were based on historic average conditions. The depletion used in the analysis was the projected maximum 24-cfs withdrawal for the power plant.

Green River

It would be technically possible for Deseret to utilize Green River water (from its existing 30 cfs water right or from Flaming Gorge storage) to supply the power plant whether the plant site is located at Bonanza or Rangely. It is uncertain, however, if legal and state water policy would allow transfer of water from Utah to Colorado for this project. This was noted in the discussion of unresolved issues in the Summary (also see Appendix 2 of the Draft EIS). This right represents 0.69 percent of the average annual Green River

TABLE 4-6

Potential Disturbance of Exposed Geological Formations
With Moderate to High Probability of
Important Fossil Occurrence

	Bonanza Site (acres)	Rangely Site (acres)
Plant Site	0	1,050
Coal Supply		
Deserado Mine Portal Area	100	100
Refuse Disposal Area	609	609
Coal Transportation Alternatives		
Electric Railroad		
Railroad Mainline	442	N/A
Coal Storage and Loadout Area	280	N/A
Coal Delivery Conveyor	36	N/A
Overland Conveyor	339	36
Slurry Pipeline	339	N/A
Off-Highway Truck Haul	29	58
Water Source and Transport Alternatives		
Green River Collector Well System and Pipeline	211	315
Utah White River Reservoir Pipeline	0	N/A
Taylor Draw Reservoir	N/A	0
Taylor Draw Pipeline	N/A	43
Wolf Creek Reservoir	N/A	0
Wolf Creek Reservoir Pipeline	N/A	26
Total	738-1,510	1,821-2,132

Note: N/A indicates not applicable.

TABLE 4-7

Potential Percent Reductions in Flow and Water Yields[a]

	Bonanza Plant Site		Rangely Plant Site		Either Rangely or Bonanza Site Coal Mine Withdrawal 304.8 ac ft/yr	Bonanza Site Slurry Pipeline Withdrawal 1,375 ac ft/yr	Increased Municipal Water Use With the Rangely Site 1.42 ac ft/yr	Total Deseret White River Water Right 4,344 ac. ft/yr
	Deseret Green River Water Rights 21,720 ac ft/yr	Identified Need at Power Plant 17,470 ac ft/yr	Oeseret Green River Water Rights 21,720 ac ft/yr	Identified Need at Power Plant 17,470 ac ft/yr				
Green River								
Percent of Average Annual Flow[b]	0.69	0.55	0.69	0.55	N/A	N/A	N/A	N/A
Percent of Lowest Recorded Annual Flow[c]	2.06	1.66	2.06	1.66	N/A	N/A	N/A	N/A
White River								
Percent of Average Annual Flow[d]	N/A	N/A	N/A	N/A	0.06	0.27	0.0003	0.86
Percent of Lowest Recorded Annual Flow[e]	N/A	N/A	N/A	N/A	0.14	0.62	0.0006	1.95
Utah White River Reservoir								
Percent of Capacity[f]	N/A	16.64	N/A	N/A	N/A	1.31	N/A	N/A
Percent of Estimated Annual Yield[g]	N/A	6.99	N/A	N/A	N/A	0.55	N/A	N/A
Taylor Oraw Reservoir								
Percent of Capacity[h]	N/A	N/A	N/A	126.59	N/A	9.96	N/A	N/A
Percent of Estimated Annual Yield[i]	N/A	N/A	N/A	42.13	N/A	3.32	N/A	N/A
Wolf Creek Reservoir								
Percent of Capacity[j]	N/A	N/A	N/A	29.12	N/A	2.29	N/A	N/A
Percent of Estimated Annual Yield[k]	N/A	N/A	N/A	27.56	N/A	2.17	N/A	N/A

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[a] N/A indicates that the water for these project components would not likely be obtained from the indicated source.

[b] 3,157,000 acre-feet equals average annual flow of the Green River. Example calculation $\frac{21,720}{3,157,000}$ = 0.69 percent.

[c] 1,055,000 acre-feet lowest recorded flow.

[d] 502,800 acre-feet.

[e] 223,200 acre-feet lowest recorded flow.

[f] 105,000 acre-feet.

[g] 250,000 acre-feet.

[h] 13,800 acre-feet.

[i] 41,462 acre-feet.

[j] 60,000 acre-feet.

[k] 63,382 acre-feet.

flow and 2.06 percent of the lowest annual Green River flow recorded. At present, Utah is using 850,000 acre-feet annually out of at least 1.4 million acre-feet. This 30.6-cfs water right constitutes 0.015 percent of Utah's total consumptive water allotment under the Colorado River Compact. Withdrawal of the 30 cfs would be the worst-case situation, since it is projected that unit 1 at 80-percent capacity would consume 7,075 acre-feet per year (10 cfs). Operating at 80-percent capacity, units 1 and 2 would use 14,150 acre-feet per year (19.5 cfs), but the maximum withdrawal for the power plant would be 17,470 (24 cfs) acre-feet per year.

The amount of water annually required for future energy development, irrigation, and municipal-industrial uses (by the year 2000) in the upper Colorado has been estimated by the Water and Power Resources Service (1979) and Colorado Department of Natural Resources (1979) to be as follows: Cheyenne Unit, 24,000 acre-feet; Central Utah Project (CUP), 278,700 acre-feet; deferred Indian lands, 50,000 acre-feet; Hayden-Craig project, 20,000 acre-feet; oil shale development, Green River and tributaries, 220,890 acre-feet; TOSCO, 18,000 acre-feet; Yellow Jacket Water Conservancy District (YJWCD), 126,400 acre-feet; and Juniper-Cross Mountain project, 63,500 acre-feet. These figures are speculative and are by no means a complete list of all water depletions that are in the planning stage, but they do illustrate the demand that could be placed on the Green River and tributaries by the end of the century.

Without the Moon Lake project, the cumulative withdrawal on the Green River system could be as much as 738,900 acre-feet depending on the number of projects actually developed. This would be 70 percent of the lowest flows and 23 percent of the average annual flow in the Green River at Green River, Utah.

Cumulatively with the Moon Lake project implemented, the river's lowest recorded flow would be reduced by 72 percent and average flow reduced by 24 percent.

Deseret could purchase up to the 30 cfs to be released from Flaming Gorge Reservoir to the Green River as a source of water for the project. Increased flows of this amount would have very little effect on overall water quality, velocity, or temperature under the present situation and would vary depending upon the amounts released from Flaming Gorge Dam. Presently, about 800 cfs are being released. The Water and Power Resources Service is required to release at least 400 cfs. Flaming Gorge water would not create new water. An overall depletion of 30 cfs would occur. The goal would be to use Flaming Gorge purchased water on an on-call basis to avoid the lowering of the river during crucial periods which would otherwise occur with the use of the existing water right. The water would not be necessarily used on a year-round daily basis. Water would be released on call for use at Deseret's point of diversion as river operating conditions may dictate.

Based on average annual flow since 1963 (after Flaming Gorge Dam began operations) and water quality tested at Jensen, Utah in 1977, it is projected that the 24-cfs water withdrawal would increase total dissolved solids (TDS) in the river by about 0.8 mg/ℓ at Green River, Utah (Hansen, 1980a) and about 1 mg/ℓ at Imperial Dam, California (Hansen, 1980b). The annual direct and indirect damage to agriculture, municipal, and industrial water users could be between $325,000 and $430,000 per mg/ℓ increase in salinity at Imperial Dam, (USDI, 1979). Table 4-8 shows the projected future increases in salinity in the Green River that would result from development of the CUP and other water projects on the Green River and its tributaries. Because of the large volume of flow in the Green River, no detectable change in temperature and pH would occur due to Moon Lake project water withdrawal.

TABLE 4-8

Projected Salinity Conditions of the Green River (TDS)

	Projected 1990 Level		Projected 2000 Level	
	Without Project	With Project	Without Project	With Project
Green River at Green River, Utah	512 mg/ℓ	512.8 mg/ℓ	519 mg/ℓ	519.8 mg/ℓ

Source: USDI, 1979 and Hansen, 1980a.

Mitigation for salinity impacts on the entire Colorado River system (including the Green and White Rivers) is being addressed in an interagency program. This is being carried out under the leadership of Water and Power Resources Service, by authority of the Colorado River Basin Salinity Control Act of 1974 (P.L. 93-320). The Act includes two main provisions: Title I - Features to comply with the United States obligation to Mexico, and Title II - Authorizes construction of salinity control features with the goal of maintaining lower in mainstem concentrations at or below 1972 levels (USDI, 1981). The program is coordinated with various agency plans and activities throughout the basin. Thus, the salinity problem is to be treated as a basin-wide problem that needs to be solved to control salinity levels while the Upper Basin continues to develop its compact-apportioned waters. On this basis, any salinity increases arising from water depletions due to the Moon Lake power plant are expected to be offset by the Colorado River Water Quality Improvement Program and related activities with include control of diffuse sources of salinity, dilution by mixing with higher quality water, and desalination plants as provided by the Salinity Control Act discussed above.

White River

Utah White River, Taylor Draw, and Wolf Creek Reservoirs

The 17,470 acre-feet of water per year for the power plant could be taken from either the proposed Utah White River Reservoir (Bonanza site); or the proposed Taylor Draw or Wolf Creek Reservoirs (Rangely site). Other water withdrawal from the White River could total 2.3 cfs (1,681 acre-feet) (1.42 acre-feet for municipal use at Rangely, 304.8 acre-feet for use at the mine, and 1,375 acre-feet for the slurry pipeline).

The potential reduction in firm annual yield of the White River Reservoirs and flow of the White River is summarized in table 4-7. The USFWS has determined that any reduction of flow from the river is an adverse impact, until the Special Study is completed in 1982. The reduction in flow in the Green River caused by withdrawals from the Utah White River Reservoir could be lowered if Deseret purchased water from Flaming Gorge for release into the Green River. Reduced flows in the White River would not be mitigated. Water temperature would be reduced below the Taylor Draw and Wolf Creek Dams and the natural flow would be altered.

Even without the Moon Lake project, the cumulative effects of all developments and withdrawals on the White River could increase salinity by 13 mg/ℓ from 445 mg/ℓ to 458 mg/ℓ in the year 2000 (USDI, 1979).

Withdrawal of water by Deseret would have essentially no effect on the TDS increases of the White River because there would be no return flow into the river. Some impact is expected on the Green and Colorado Rivers since a diversion from the White River would mean that less higher quality water (lower TDS) would flow into the poorer quality (higher TDS) Green River, and consequently, less diluting of the Green River water would take place.

Based on historic average conditions, it is estimated that if 17,470 acre-feet per year (24 cfs) were withdrawn from the White River, the TDS level of the Green River would increase by about 0.33 mg/ℓ (Hansen, 1980c). Any of the reservoirs on the White River would reduce sediment load downstream and minimum flows would probably increase. The White River Reservoirs would change downstream water temperature and pH. It is unlikely that pH would drop below 7 or exceed 8.5 (Hansen, 1980c). With proper design for selective water withdrawal, water temperature and pH could be adjusted to any desired condition. These effects were analyzed in the White River Dam Project Draft EIS (USDI, BLM, 1980).

Purchase of Water for the Rangely Plant Site

Assuming 50-percent consumptive use, 34,000 acre-feet (47 cfs) of agricultural irrigation water could be purchased on an as-needed basis to supply Moon Lake project requirements. In addition to their existing 6 cfs water right on the White River, Deseret could purchase 16 cfs from the Town of Rangely.

The agricultural water would be used as backup and withdrawn from the river as required to meet project needs. The reduction in White River flows that would occur is not known, but could be as much as 40 to 50 percent. Salinity would be reduced through elimination of irrigation return flows that are typically high in TDS.

Some impact to ground water would occur as a result of subsidence at the Deserado Mine. There is not expected to be any significant impact to water supply. No extensive acquifer system has been identified, and the low-yield poor quality water over the mine is not considered to be significant.

FLOODPLAINS

No power plant or raw material supply system alternative would cause a flood hazard nor would they cause important compromises to the natural and beneficial values served by the floodplains. Effects on the wetland/riparian areas associated with the floodplains are discussed in the Vegetation section.

VEGETATION

VEGETATION TYPES

The acreages which could be disturbed and occupied by the proposed and alternative project components are listed in table 2-1.

It is assumed that all vegetation within the proposed Bonanza or alternative Rangely plant sites would be cleared by heavy excavating equipment. The duration of loss of this vegetation would be approximately 10 to 20 years beyond the life of the project. Likewise, the acres occupied by proposed and alternative coal and water supply alternative structures would cause displacement of vegetation for at least the same period of time.

The acres disturbed would be modified to the extent needed to accommodate the installation of selected facilities. Heavy excavating equipment would be used to prepare the right-of-way and it is assumed that all disturbed areas would initially be cleared of all existing vegetation. Following installation, cleared areas would be reseeded and the process of revegetation would begin within 1 year of the initial disturbance.

In general, the affected native vegetation types are common and widespread and would reestablish on disturbed areas approximately 10 to 20 years after completion of mitigation. It could be expected that there could be an increase of noxious weeds in all disturbed areas.

The most significant impact to vegetation that would be caused by construction of the proposed and alternative project components would be the loss of riparian vegetation including cottonwood trees along Kennedy Wash at the Bonanza site and Cactus Reservoir at the Rangely site and in the areas that would be submerged by construction of the Taylor Draw and/or Wolf Creek Reservoirs. Cottonwoods are limited in distribution to riparian situations and are important to wildlife. Riparian vegetation would become reestablished to some degree around the shores of the reservoir, but it would probably take 50 to 100 years to replace cottonwoods of the same size as those destroyed. Riparian areas which presently or could potentially support broadleaf vegetation in semi-arid ecosystems are of special management concern (BLM Manual 6740). Loss of riparian vegetation would be important as this would conflict with Executive Order 11990 which provides for protection of wetland-riparian areas. Federal management policy is to avoid construction in riparian areas and to minimize loss of riparian vegetation. The acreages of riparian vegetation that would be disturbed by project components are shown in table 4-9.

If the Rangely plant site were constructed, a 980-acre artificially seeded area would be destroyed. The loss of this seeding would remove 49 animal unit months (AUMs) (39,200 lbs/year) of forage from use by livestock and wildlife (see grazing impacts in the Land Use section). In addition, about 1 acre of a 4-acre unique mountain shrub community could be removed by widening and paving the Rangely site primary access road. The loss of this community would be permanent and would result in an unquantifiable loss of scientific information.

THREATENED AND ENDANGERED PLANT SPECIES

A small but unquantified number of Uinta Basin hookless cactus (Sclerocactus glaucus) plants could be inadvertently destroyed during construction of the Green River to Bonanza water pipeline. Only one plant was located in the pipeline corridor during field inventories. It is the official biological opinion of the USFWS that the continued existence of the Uinta Basin hookless cactus would not be jeopardized by the Moon Lake project. Since the main population centers of this officially listed threatened species are west of the pipeline route, the species would not be adversely affected by inadvertent losses.

Of the ten candidate threatened and endangered plant species, seven have been found in relative abundance in the Uinta Basin area and have been recommended by the Utah Native Plant Society for delisting (Welsh, 1979).

Because of the abundance and dispersion of the seven species recommended for delisting, the Moon Lake project would not adversely affect these species.

Ephedra buckwheat (Eriogonum ephedroides--candidate threatened), Graham beardtonque (Penstemon grahamii--candidate endangered), and Dinosaur milkvetch (Astragalus saurinus--candidate threatened), have been recommended by the Utah Native Plant Society for official listing.

TABLE 4-9

Potential Loss and Disturbance of Riparian Vegetation

Project Alternative	Bonanza Site (acres)	Rangely Site (acres)
Plant Site	82[a]	80[a]
Coal Supply Alternative		
Deserado Mine (including alluvial wells)	40	40
Refuse Disposal Area	80	80
Coal Transportation Alternative[b]		
Electric Railroad		
Railroad Mainline	5[c]	N/A
Coal Storage and Loadout Area	0	0
Coal Delivery Conveyor	Less than 1	Less than 1
Overland Conveyor	1[d]	0
Slurry Pipeline	2[e]	N/A
Off-highway Haul Route	4[f]	0
Water Source and Transport Alternatives		
Green River Pipelines[b] (including collector well system)	30	10
Utah White River Reservoir Pipeline[b]	0	N/A
Taylor Draw Reservoir	N/A	50[a]
Taylor Draw Reservoir Pipeline[b]	N/A	Less than 1
Wolf Creek Reservoir[g]	N/A	863
Wolf Creek Reservoir Pipeline[b]	N/A	Less than 1

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[a] Includes cottonwood-riparian.

[b] Assumes 0.25 mile corridor.

[c] Assumes 140' ROW.

[d] Assumes 100' ROW.

[e] Assumes 50' ROW.

[f] Assumes 120' ROW

[g] Riparian greasewood association.

An unquantified number of Graham beardtongue and Ephedra buckwheat plants could be inadvertently destroyed by the construction of the electric railroad, coal conveyor, or slurry pipeline. An unknown number of Dinosaur milkvetch plants could be inadvertently destroyed by construction of the Green River to Bonanza water pipeline. It is not likely that the Moon Lake project would adversely affect these species because of the small acreage that would be disturbed by linear facilities and the selective placement of the facilities as guided by a qualified botanist. No surveys for these plant species have been conducted specifically for the Taylor Draw or Wolf Creek Reservoir sites. There is potential for any of the species listed in table 3-5 except Ephedra buckwheat, Uinta hermidium, and Graham beardtongue, to occur within the areas which could be flooded. Prior to construction of the reservoir, surveys would be made to determine if any officially listed threatened or endangered species are present.

If any threatened or endangered species are present, an environmental assessment would be done to determine if the impacts would adversely affect the continued existence of the species. If the environmental assessment predicts an adverse effect, Section 7 consultation would be initiated with the USFWS.

ANIMAL LIFE

TERRESTRIAL

Mule Deer

There are few deer in the areas that would be affected by the power plant and raw material supply systems (Smith, 1979) and construction of any of the alternatives would have little effect on this big game animal. Operation of the electric railroad system for the Bonanza plant site would not result in the loss of deer because of their low density and the slow (less than 40 mph) speed of the train.

The overland conveyor system, with its accompanying maintenance road and powerlines, would not impact deer because the terrain would require adequate viaduct structures to carry the conveyor. The deer would be able to cross under these viaducts, some of which would be approximately 100-150 feet high.

The 32.7-mile slurry pipeline to the Bonanza site would be buried and could have long-term beneficial impacts to deer due to the improvement in forage composition from reseeding of the disturbed areas.

The on-highway truck haul alternative would likely increase the yearly loss of deer, but by an unknown quantity because most truck traffic would occur during the day and most deer-vehicle collisions occur at night. This impact would occur over a 3-month period in 1983 regardless of the transport method selected because trucking would be the initial method for coal transportation until the final system becomes operable. The increase in traffic associated with the project could result in an unquantifiable increase of deer deaths on well-traveled roads primarily during winter and spring months. Loss of deer from off-highway haul trucks would be minimal because slower speeds and fewer trucks would be used than with on-highway trucking.

There would be negligible losses of deer from the Rangely conveyor or truck haul alternatives because of the short distance from the mine to the power plant and because the area which would be impacted is marginal habitat and little used by deer. The Taylor Draw Reservoir would cause minimial losses to the deer herd of this area. Use within the 585 acres of critical winter range which would be inundated by the Wolf Creek Reservoir is small in relation to the total available winter range. However, the Colorado Division of Wildlife consideres the loss of any critical deer winter range as a significant impact (Grand Pre, 1983, Letter 22j.6 in Chapter 5 of this Final EIS). umulative losses of winter range from this and other projects will lead to the loss of deer. The migration of deer in the area of the Wolf Creek Reservoir would not be disrupted because the migration route is largely outside of the area that would be inundated.

Pronghorn Antelope

Construction activities at the Bonanza site would disrupt antelope reproduction during the critical fawning season (May 10 through June 20) and could reduce the population of the herd by an unquantifiable number. About 4 percent of the fawning area of the Bonanza antelope herd would be occupied by the plant site. Any losses added to a herd which is apparently surviving in a marginal situation could eliminate the herd.

The Rangely plant site would occupy 2,202 acres of antelope summer range (see figure 3-3) and would destroy Cactus Reservoir, a permanent summer watering source. The significance of the occupied acreage to the support of the herd is probably minor because the area is at the fringes of marginal summer range. The loss of Cactus Reservoir could have detrimental effects on the herd but the degree of dependence of the herd on the reservoir is not known.

The refuse disposal area would disrupt the use of approximately 600 acres of antelope summer range over the life of the plant and hinder the migration of antelope to the southern end of summer range (see figure 3-3); however, the significance would be minor because there are not many antelope using this peripheral summer range and those that do would adapt to the changes.

The Bonanza or Rangely site coal transportation and water transport pipeline alternatives would disturb different amounts of antelope habitat (see table 3-6), but none would adversely affect antelope unless construction took place during the critical antelope fawning season (May 10 through June 20). Construction activity during the fawning season could cause abandonment of fawns and could result in a 1-year loss of fawn production for an undeterminable portion of the herd. The long-term effects of the slurry pipeline coal transport alternative and any of the water transport pipeline alternatives would be beneficial to antelope because, after rehabilitation, the routes may produce more antelope forage than before construction.

The on-highway truck haul coal transport alternative for the Bonanza plant site would increase traffic on 31 miles of highway and could result in an unquantifiable increase in highway mortality of antelope in Utah and Colorado.

Sage Grouse

The only power plant site and raw material supply system alternatives that would affect known sage grouse use (concentration) areas are the Rangely plant site, Deserado Mine refuse disposal area, the railroad and off-highway coal transport alternative routes for the Bonanza site, the overland conveyor route to the Rangely site, and the Green River and Wolf Creek Reservoir pipelines to the Rangely site. The habitats that would be affected are shown in table 3-7. The densities of sage grouse in most of these areas and their importance to the survival of sage grouse is not known. Therefore, impacts to sage grouse populations in most of the areas cannot be predicted nor quantified. However, the absence of "leks" (strutting grounds) indicates that sage grouse populations in the potentially affected areas would not likely be lost due to construction or operation of any of the power plant or raw materials supply system alternatives. Within the mine refuse disposal area where concentrations average about 2 per hectare, three potential leks have been identified. If these are verified, the impact to sage grouse would be increased.

Raptors

There would be little or no significant impact to raptors at either the Bonanza or the Rangely sites because of the lack of raptor nesting habitat. However, construction of the plant at the Rangely site could disrupt one burrowing owl nest.

The construction of facilities at the Deserado Mine portal area could cause the abandonment of one golden eagle nest. The refuse disposal area could disrupt 609 acres of habitat used by raptors as sources for their rabbit and rodent food supply, but no loss of raptors is expected. Great horned owls, red-tailed hawks, and ferruginous hawks are found throughout the project area but adverse impacts are expected to be low because there is ample nesting and feeding habitat for these birds throughout the region adjacent to impact areas.

One ferruginous hawk nest located along the railroad/off-highway truck haul route to the Bonanza site would probably be abandoned due to construction in close proximity to the nest. The impacts to raptors associated with Taylor Draw and Wolf Creek Reservoirs would be the immediate removal of some nesting habitat.

Threatened and Endangered Species

The impacts to whooping cranes from construction and operation of the power plant sites and raw material supply systems are unknown, but expected to be slight. The impacts to bald eagles and peregrine falcons would be some loss of potential food sources (prey species) and an unknown potential increase in illegal loss from shooting brought about by an increase in human activity related to the construction and operation of the project. Taylor Draw and Wolf Creek Reservoirs would beneficially impact these two species except for the possible loss of one roost area in the inundation area of Wolf Creek Reservoir.

Suitable habitat for the black-footed ferret is found at prairie dog towns scattered throughout the power plant and raw material supply alternatives. However, none of the power plant or raw material supply system alternatives would adversely affect the endangered black-footed ferret. The official biological opinion of the USFWS is that the Moon Lake project would not likely jeopardize these species.

Wild and Free Roaming Horses

Construction and operation of the applicant-proposed Bonanza site would cause the Bonanza wild horse herd to abandon approximately 14,000 acres (51 percent) of their present home range use area (Evans, 1981). The increase in human activity in the area could also cause an unquantifiable amount of harrassment of the herd on the remaining 49 percent of their range. These factors could result in the loss of a portion of this wild horse herd.

Riparian Habitat

(For acres of potential loss or disturbance of riparian habitat, see table 4-9.)

It can be assumed that the removal of riparian zone vegetation would affect about 80 percent of all wildlife species in a given area by eliminating the food and cover it affords. The duration of loss of the riparian habitat would vary with the nature of the impact. Any riparian vegetation removed incident to construction activities would re-establish within a 20-year period. However, age class diversity (i.e., old cottonwoods) would take from 50 to more than 100 years to reestablish. Of course, if any riparian habitat were occupied by a project component, the loss would be at least 20 years beyond the removal of the component.

If a drainage were modified, the loss may be permanent.

AQUATIC SPECIES

Green River

Threatened and Endangered Species, Game Fish, and Non-Game Fish

Maximum water withdrawal for the Moon Lake project would reduce the lowest recorded annual flow in the Green River by about 2.0 percent (see Water Resources section, Chapter 3). The minimum allowable release from Flaming Gorge Reservoir is about 400 cfs. Deseret's withdrawal of 30 cfs would reduce this amount by 7.5 percent. Water would be removed by collector wells which do not require instream activity. The possible effects of a 30-cfs withdrawal for the Moon Lake project are controversial and not agreed upon by all experts. A reduced flow could affect about 28 species of fish. Of these species, three are endangered, one is rare, and nine are considered game fish. Holden and Selby (1979b) feel that it would not adversely affect any of the 28 species of fish in the river. However, Seethaler (1978) concluded from his studies that the Green River contains the most viable remaining populations of the Colorado squawfish and that any further water development of the Green River basin could severely affect the continued reproductive success of squawfish. By itself, the Moon Lake project would not likely result in a loss of any fish species nor adversely affect their essential habitat. However, the cumulative impact of water withdrawal for this project, as well as for the CUP (see Water Resources section, Chapter 3), could adversely affect the aquatic life in the Green River. The official biological opinion of the USFWS is that the Moon Lake project would impact the Green or White Rivers by reducing flows and is likely to jeopardize the continued existence of three endangered fish species. However, if water were purchased from Flaming Gorge, thus replacing water withdrawn from the Green River for the Moon Lake project, the endangered fishes would not be affected (see Appendix 23 in the Draft EIS).

If water (30 cfs) could be obtained from Flaming Gorge Reservoir and released for use by the Moon Lake project, streamflows would not likely be adversely affected. This alternative would accomplish a USFWS goal of not allowing the flows to drop below the minimum requirements of the endangered fish. The critical amount of flow (minimum requirement) has not yet been determined. However, if increased flows did result from a changed system of release, this would create faster water which would take longer to warm up. Water volume, water velocity, and temperature may fluctuate depending upon amounts released from the Flaming Gorge Dam. The magnitude of the impact would be directly proportional to the amount of fluctuation.

A portion of the endangered fish habitat below Flaming Gorge Dam could be altered and would no longer be used by the endangered fish. However, an increase of 30 cfs in flow above the 400-cfs required release from the dam would make up for Deseret's withdrawal for the Moon Lake project and maintain endangered fish habitat below Deseret's withdrawal point. Consultation concerning this alternative has been initiated with the USFWS. The biological opinion is that, if water were purchased from Flaming Gorge, thus replacing water withdrawn from the Green River for the Moon Lake project, the endangered fishes would not be affected.

White River

Threatened and Endangered Species, Game Fish, and Non-Game Fish

Assuming maximum possible direct water withdrawal from the White River (6 cfs), the lowest recorded monthly flow (62 cfs in July 1977) would be reduced by 10 percent. Flows as low as 62 cfs have been recorded only once in 43 years at Rangely; however, low flows of 54 cfs and 45 cfs have been reported from the USGS station near Watson in 1934 and 1972, respectively.

Reduced flow would affect about 18 species of fish. Holden and Selby (1979a) state that "during low flows, the proposed withdrawal may impact the aquatic ecosystem to an unknown extent." They believe that the greatest change may occur in stream bottom conditions which would probably result in population changes of fish (i.e., an increase in the presence of introduced fishes, especially red shiners, and an attendant reduction in native fishes). Density and diversity of other aquatic life could also be reduced as a result of flow changes. Since it appears that individual endangered and rare fishes tend to use this tributary more for travel than for maintaining reproductive areas, it is not likely that severe adverse impacts would occur. The water withdrawal by the Moon Lake project itself would not likely result in loss of fish or adversely modify habitat However, the official biological opinion of the USFWS states that the Moon Lake project would impact the Green or White Rivers by reducing flows and is likely to jeopardize the continued existence of three endangered fish species. The cumulative effect of reduced flows in the Green River due to water withdrawal from tributaries including the White River, especially during low flows or drought periods, is of concern. In themselves, small withdrawals may not seriously impact the White River system, but together, a number of withdrawals could create serious changes in the river's ecosystem (Holden and Selby, 1979a).

The impacts of the Taylor Draw and Wolf Creek Reservoirs on the aquatic ecosystem would be similar to those of the Utah White River Reservoir on the aquatic ecosystem in the White and Green Rivers. Because the Utah White River Dam and Reservoir would be closer to the Green River than the Taylor Draw or Wolf Creek Reservoirs, the Draft EIS on that project provides a worst-case analysis of the impacts of reservoirs on fish in the White River. A formal consultation with the USFWS has been initiated, but a biological opinion for the project has not been received.

If the Taylor Draw or Wolf Creek Reservoirs were implemented, these dams would create barriers and block the movement of fish from the Green River. Other impacts would be the release of clear cool water from the dams and changes in the river's flow pattern. Colorado squawfish would not utilize the altered habitat (Holden, 1980).

If Deseret were to purchase agricultural water and retain it in the river as makeup for their withdrawal, the actual reduction in flows of the White River and its effects on endangered fish would be unknown. This cannot be predicted because past water use for agriculture and its relationship to historical flows in the river is unknown and operational data for the Taylor Draw or Wolf Creek Reservoirs is not available.

The Taylor Draw and Wolf Creek Reservoirs could potentially provide new habitat for game fish.

CULTURAL RESOURCES

All of the 122 sites found on the plant sites and raw material supply system alternatives could be affected by vandalism and/or inadvertent project activities resulting in a small but unquantifiable loss of scientific and educational values. A listing of cultural resource sites by project component is found in table 3-8. Whenever possible and feasible, cultural resources would be avoided by construction and related activities. If this is not possible, the BLM and/or other appropriate agency would consult with the appropriate State Historic Preservation Officer to determine the most satisfactory means of mitigating damage. Subsidence at the Deserado Mine could adversely affect those sites having structural features or subsurface deposits. Structural damage could occur from subsidence stresses and result in a loss of the information.

VISUAL RESOURCES AND RECREATION

VISUAL RESOURCES

Construction at either the Bonanza or Rangely site would modify the landscape character and exceed the acceptable limits of the visual resource management (VRM) objectives of the respective areas for the life of the project (see Appendix 16 of the Draft EIS for definition of VRM terms). A decision by the Federal government to implement this project would be a decision to alter the VRM objectives for the affected areas. The Bonanza plant would be of high visual contrast and visible to visitors at the Devil's Playground and travelers along Utah Highway 45 (280 ADT) and the Uintah County road to Red Wash (see figure 4-1). The Rangely plant complex would not be visible to travelers along any major highways but would be visible to travelers on the Staley-Gordon Mine road. Both plant sites would be out of character with the open space nature of the existing landscape.

The Deserado Mine portal facilities would meet the area's VRM Class IV objectives. The refuse disposal and railroad coal storage and loadout area would modify the landscape character and would not meet Class IV visual quality objectives of the affected area for the life of the project.

The Deserado Mine to Bonanza site railroad would meet VRM Class IV objectives but would not meet Class III objectives (see figure 4-2). The railroad would be of high and moderate visual contrast to travelers on US 40 (775 ADT) for 4 miles, Colorado Highway 64 (950 ADT) for 4 miles, and Utah Highway 45 (280 ADT) for 3 miles. It would be a visual intrusion in the Devil's Playground (Class B scenery, Management Class IV). The railroad coal delivery conveyor and access road from the mine to the coal storage and loadout facility would meet the affected area's VRM Class IV objectives. The railroad coal storage and loadout facilities would modify the landscape and not meet VRM Class IV objectives of the area for the life of the project.

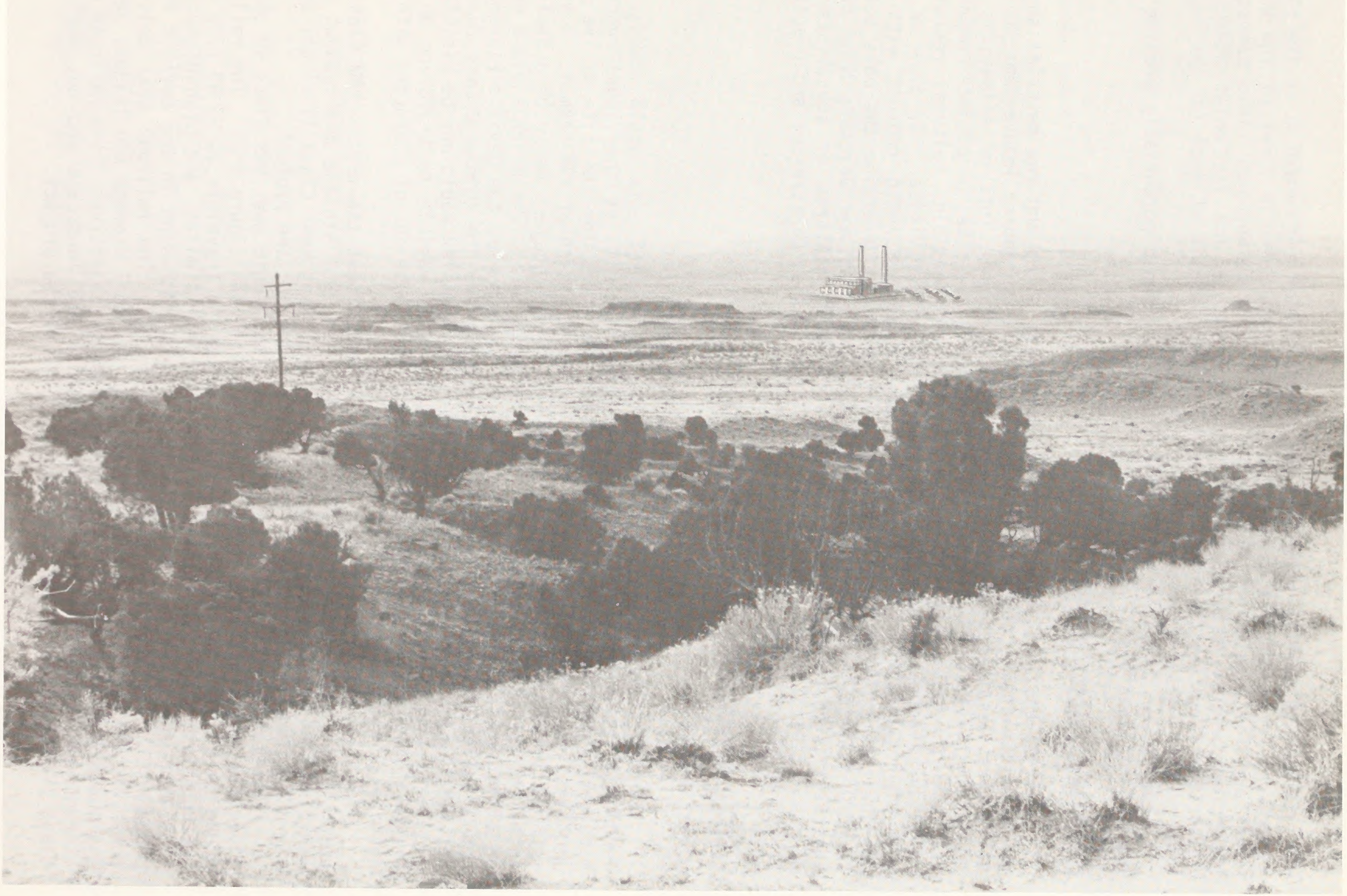

FIGURE 4-1

VISUAL SIMULATION OF BONANZA PLANT SITE

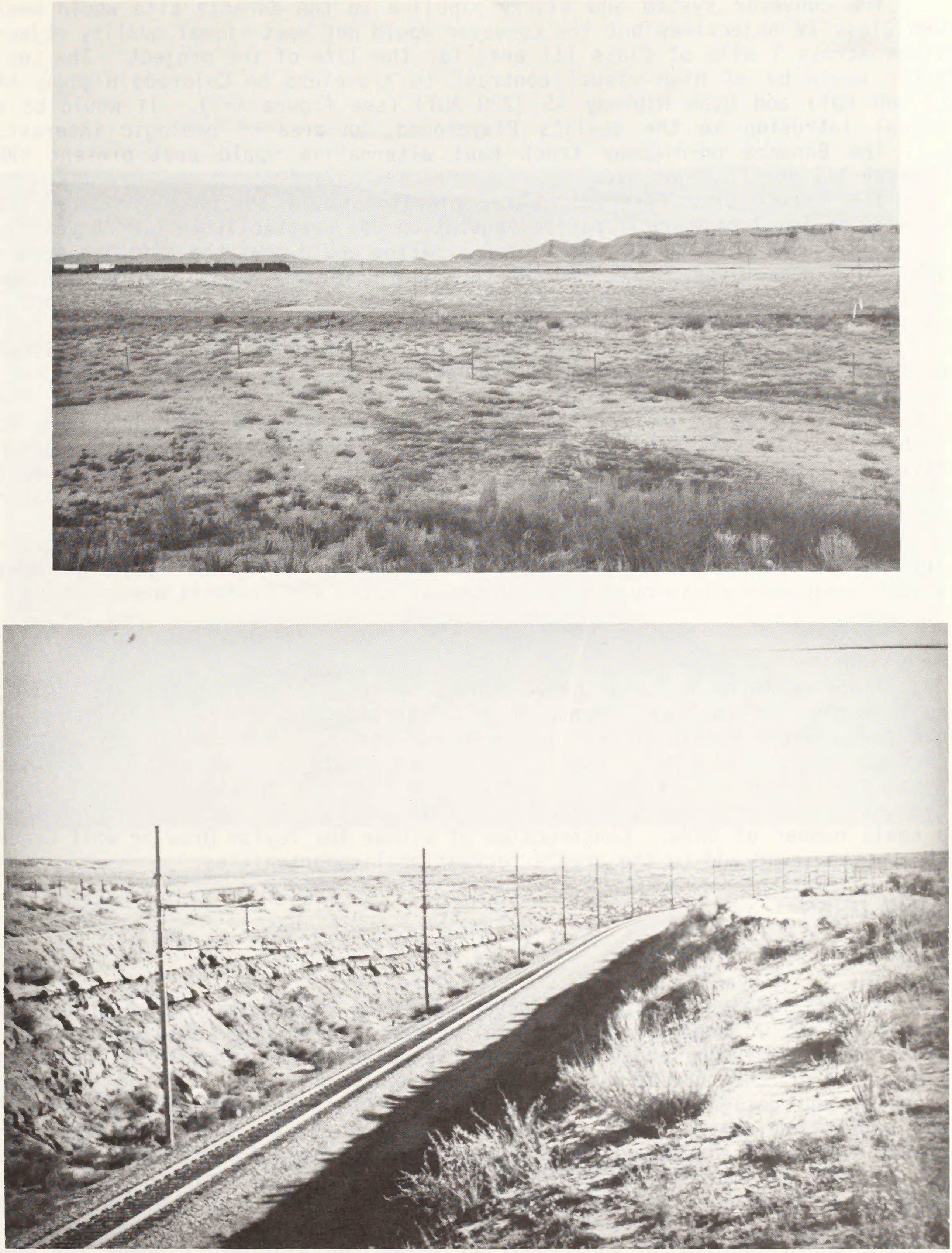

FIGURE 4-2

TYPICAL CATENARY RAILROAD SYSTEM

The conveyor system and slurry pipeline to the Bonanza site would meet VRM Class IV objectives but the conveyor would not meet visual quality objectives across 1 mile of Class III area for the life of the project. The conveyor would be of high visual contrast to travelers on Colorado Highway 64 (2,000 ADT) and Utah Highway 45 (280 ADT) (see figure 4-3). It would be a visual intrusion in the Devil's Playground, an area of geologic interest.

The Bonanza on-highway truck haul alternative would meet present VRM Classes III and IV objectives.

The Taylor Draw Reservoir water pipeline would not meet VRM Class II objectives for 1 mile until native vegetation was reestablished (10-20 years).

The Green River to Bonanza water pipeline would meet the affected area's VRM class objectives. The Utah White River Reservoir water supply pipeline would not meet VRM objectives through 2 miles of VRM Class II area until native vegetation became reestablished (10-20 years).

The Wolf Creek Reservoir pipeline would not meet VRM Class II visual contrast objectives for 3 miles until native vegetation became reestablished. The Green River to Rangely pipeline would meet VRM class objectives. The pipeline would be of low contrast visibility to travelers on Utah Highway 45 (265 ADT). The water collector system that would be required along the Green River to supply water for the generating station would be of high contrast visibility to a small, but unquantified, number of recreational boaters (estimated at less than 200 per year).

The Taylor Draw and Wolf Creek Reservoirs would enhance the scenic quality of the area. However, the dams and ancillary facilities would not meet visual management class objectives in the affected VRM Class II area.

RECREATION

There would be no anticipated impact to recreation from the plant site, coal supply, or the coal transport alternatives. The collector wells along the Green River would add an increment of intrusion and further detract the recreation experience of a small, but unknown number of recreational boaters (estimated at less than 200 per year). The railroad to the Bonanza site and the coal conveyor to either plant site would be barriers and/or hindrances to a small number of ORVs. Construction of either the Taylor Draw or Wolf Creek Reservoirs would add to the area's recreational opportunities.

LAND USES

URBAN USE

Project-related population increases could cause housing shortages in either Vernal or Rangely and additional acreage for housing would be required. With either site, the project-related acreage requirements would be less than 1 percent of the available acreage at Rangely or Vernal. Based on urban planning and design criteria published by Dechiara and Koppelman (1975), if the generating station were constructed at Bonanza, the peak population increase at Vernal would require an additional 36 acres for housing, 12 acres for new streets and associated utilities, 4 acres for commercial growth, and 1 acre for recreation. Cumulatively, this represents less than 1 percent of the available acreage in the Vernal/Ashley Valley area. Population increases at Rangely would require an additional 21 acres for housing, 7 acres for new streets and associated utilities, 2 acres for commercial growth, and 1 acre for recreation (cumulatively, 1 percent of available acreage including public land purchase).

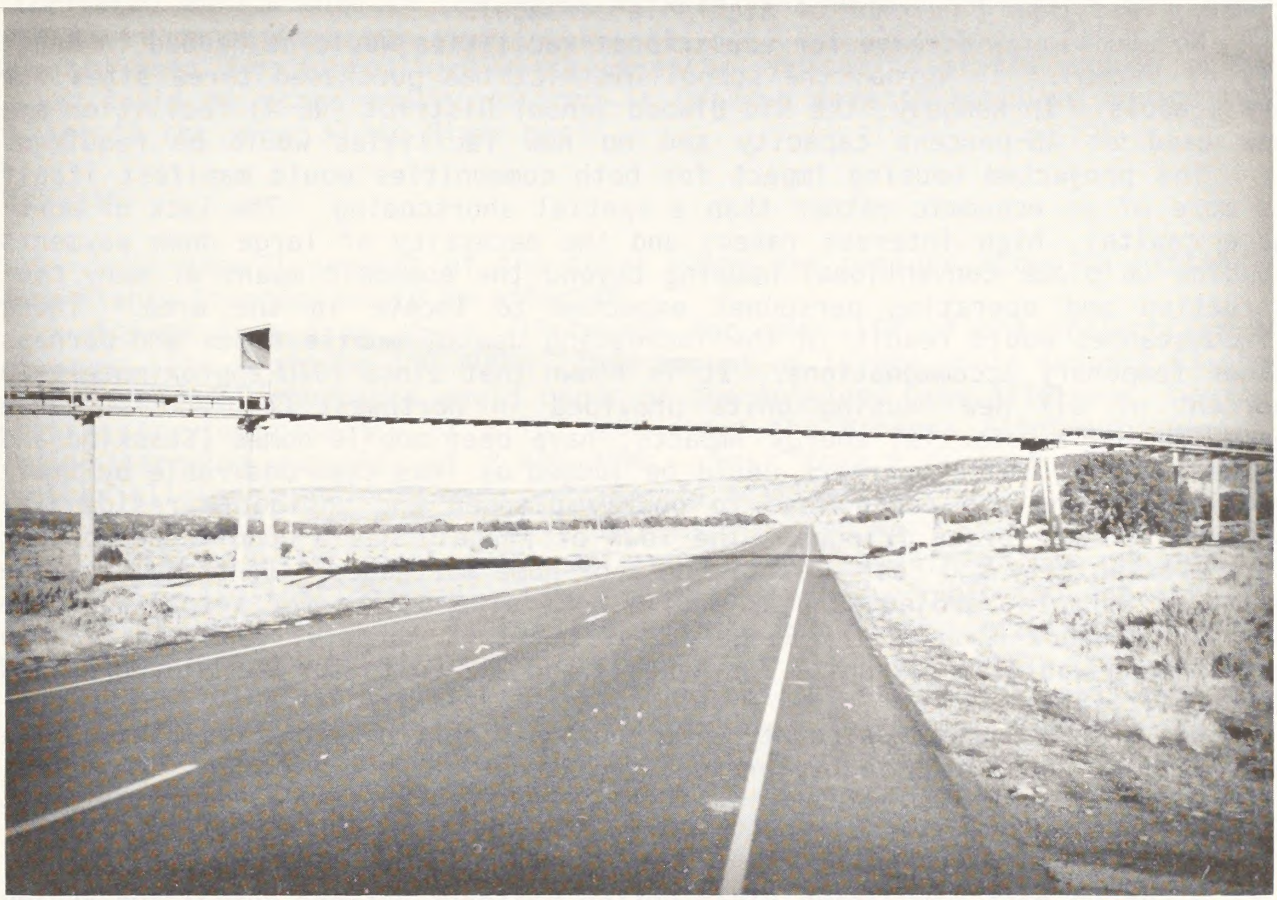

FIGURE 4-3

TYPICAL OVERLAND CONVEYOR
HIGHWAY CROSSING

Should the plant be constructed at the Rangely site, Rangely would require an additional 38 acres for housing, 12 acres for new streets and associated utilities, 4 acres for commercial growth, and 1 acre for recreation (cumulatively, 2 percent of available acreage). Vernal would require an additional 21 acres for housing, 7 acres for new streets with associated community services, 2 acres for commercial growth, and 1 acre for recreation (cumulatively, less than 1 percent of available acreage).

No additional acreage for educational facilities would be needed in Rangely or Vernal. In Vernal the school district has purchased three sites for new schools. In Rangely, the Rio Blanco School District (RE-4) facilities are now used at 46-percent capacity and no new facilities would be required.

The projected housing impact for both communities would manifest itself as more of an economic rather than a spatial shortcoming. The lack of mortgage capital, high interest rates, and the necessity of large down payments combine to place conventional housing beyond the economic means of many construction and operating personnel expected to locate in the area. These circumstances would result in the increasing use of mobile homes and perhaps other temporary accommodations. It is known that since 1970 approximately 60 percent of all new housing units provided in northwest Colorado, an area experiencing substantial energy impacts, have been mobile homes (Susskind and O'Hare, 1977). Such quarters could be judged as less than desirable by immigrating workers and could lead to poorly planned and unsightly residential patterns on the urban fringes. The Town of Rangely has a bond issue to support availability and cost effectiveness of home mortgages. If the plant were built at Bonanza, projected peak mobile home site demand for Vernal would be 342 units and 216 units for Rangely. If built at Rangely, peak mobile home site demand would be 329 units for Rangely and 202 units for Vernal (Burns and McDonnell, 1979a).

Rio Blanco County has county-wide zoning to control indiscriminant mobile home siting, but Uintah County presently does not.

AGRICULTURE

Based on past population distribution patterns between Vernal and Ashley Valley, possible peak urban development into Ashley Valley could displace a maximum of 29 acres, or less than 1 percent of available acreage, of agricultural land. No agricultural lands would be impacted by the plant site alternatives, Deserado Mine, or coal transport alternatives.

Four ranch houses would be inundated by the Taylor Draw Reservoir. Four hundred irrigated acres of farmland would be inundated, of which 176 acres are classified by the SCS as being prime (irrigated). This represents 2.5 percent of the irrigated land in Rio Blanco County or 7 percent of the 2,000 acres of prime (irrigated) farmlands near Rangely. Meadow hay and alfalfa are the main crops where production losses would occur (Fleming, 1979a). Potential losses could be up to 4 tons per acre of alfalfa or 1.66 tons per acre of meadow hay (ASCS, 1980).

Four ranch houses would be inundated by the Wolf Creek Reservoir. Four hundred and three acres of irrigated land, not prime by SCS standards, would be innundated by the Wolf Creek Reservoir water supply alternative. This represents 10 percent of the irrigated land along the White River or 2.5 percent of the irrigated land in Rio Blanco County. Meadow hay, alfalfa, oats, and barley are the main crops where production losses would occur. This would be less than 1 percent of the Rio Blanco County annual yield of each of these crops (from both irrigated and nonirrigated lands) (Colorado Department of

Agriculture, 1980). Potential losses could be up to 4 tons per acre of alfalfa, 1.66 tons per acre of meadow hay, 80 bushels per acre of oats, or 53 bushels per acre of barley (ASCS, 1980). About 5,000 lbs. of honey production would be lost annually, at a 1979 dollar value of $3,030 (Colorado Department of Agriculture, 1980).

Annually, about 27,000 acre-feet of water is consumptively used for irrigated agriculture in the upper White River basin. Deseret's requirement of 17,470 acre-feet per year is equivalent to 47 percent of the water currently used for agriculture which gives an indication of the amount of land that could be occasionally retired if Deseret were to purchase agricultural water in the upper White River basin.

GRAZING

Less than 1 percent of the total range and pasture acres in Uintah and Rio Blanco Counties would be affected.

Forage loss from sheep allotments for the life of the project for the Bonanza site would be 150 AUMs. This amount of forage would support 63 sheep for 1 year. Disturbance would occur on the Antelope Draw Allotment, having a total carrying capacity of 6,707 AUMs, and the Bonanza Allotment, having a total carrying capacity of 2,434 AUMs. Less than 5 percent of the AUMs in either allotment would be made unavailable to livestock.

The Rangely site would remove 94 AUMs from Red Wash Allotment (20 percent of the forage allocation in the allotment) for the life of the project. In addition, livestock movement along Red Wash would be inhibited and the major livestock water sources, Cactus and Prairie Dog Reservoirs, would be within the fenced project boundaries.

The mine refuse disposal and railroad coal storage and loadout area would also be located predominantly in the Red Wash Allotment, removing an additional 42 AUMs (10 percent). The combination of facilities would remove 30 percent of the total AUMs in the allotment. Based on present available AUMs, forage sufficient for 18 sheep per year could be eliminated by a combination of the Rangely site, mine refuse disposal area, and railroad coal storage and loadout area.

The Deserado Mine would remove 54 AUMs (3 percent) of the Spooky Mountain Allotment.

Loss of forage production from coal transportation and water supply alternatives would be minimal, considering the small acreages occupied as compared to the total acreages available on those allotments. Table 3-10 compares the AUMs that would be removed by the power plant and raw material supply system alternatives to the total allocations in the affected allotments. The amount of loss on any one allotment (with the exception of Red Wash) would range from 1 to 8 percent of total forage production.

TRANSPORTATION

Movement of heavy equipment to the plant site would cause temporary interruptions in traffic flow and increase the potential for traffic hazards until construction at the plant site was completed. Mixing of normal traffic and refuse haul trucks that would be moving in a left-hand traffic pattern along Rio Blanco County Road 78 would result in an extreme safety hazard that could result in fatal accidents.

The Deserado Mine coal transportation alternatives would greatly increase traffic volume on Utah State Highway 45, Colorado Highway 64, U.S. Highway 40, and minor secondary roads.

Expected traffic volume impact from the on-highway trucking alternative along U.S. Highway 40 between the Deserado Mine and the Bonanza plant site can be quantified by assuming use of 23-ton-capacity trucks, on a basis of a 5-day week, 8 hours per day. With one generating unit, a truck would pass a given point along the route approximately every minute. With two units, doubling the required volume, this would increase to every 30 seconds (Gellman Research Associates, Inc., 1978). Noise levels at the Town of Dinosaur would increase. Peak noise level from coal haul trucks at 35 mph or greater would be 86 dBA (weighted sound level--see Glossary), measured at 50 feet (EPA, 1971). Typical outdoor residual noise levels for rural areas are 16-35 dBA, urban residential area levels are 46-55 dBA, and very noisy urban residential and downtown city levels are 56-75 dBA. The community is currently experiencing considerable energy-related heavy truck noise; therefore, increases in frequency and magnitude would be realized. Resultant impacts on population would include interference or temporary inability in hearing and speaking and disruptions in sleep patterns or concentration. Impacts normally range from minor annoyance to serious disruption of activities (U.S. Dept. of Transportation, 1978).

High volume, high tonnage truck traffic would result in unquantifiable damage to the road surface; however, current pavement condition ratings (Colorado Department of Highways, 1979a) indicate existing deficient pavement conditions along the on-highway trucking route. Four hundred seventy-one additional round trips would be expected as a result of the on-highway trucking alternative on U.S. 40 and Utah Highway 45 during work days. This would be approximately a 323-percent increase in daily traffic on Utah Highway 45 and up to 117 percent on the affected portion of U.S. 40. Truck traffic impact analysis (Mahoney and Terrel, 1979) states that if the percentage of loaded coal trucks exceeds 10 percent of total existing truck traffic, the impact on the highway may be quite significant.

Ninety-one additional round trips would be made by coal trucks each work day during the 3-month period of 1983, regardless of the permanent method of coal transport selected. This would be approximately a 65-percent increase in daily traffic on Utah Highway 45 and up to a 24-percent increase on the affected portions of U.S. Highway 40.

Based on current accident rates on affected highways (combined property damage, injury producing, and fatality producing), the peak population year could realize an increase of 88 accidents (Colorado Department of Highways, 1979b).

Similar impacts would result on major highways over the life of the project should open market coal purchase be utilized to supply the project. Haul distances of up to 280 miles and up to 2.7 million tons per year (117,391 trips/year) could be expected. This could occur during the final 15 years of operation if Deseret were unable to supply sufficient coal from the Deserado Mine. The off-highway truck haul alternative would employ bridge crossings at highway intersects. The only impact would be short periods of interrupted traffic flow during construction of the bridges.

The remaining coal transport and water pipeline alternatives would cause temporary interruptions in traffic flow during construction.

Taylor Draw Reservoir would inundate 3,100 linear feet of Colorado State Highway 64 which would have to be relocated. This would cause temporary interruptions in traffic flow during construction. The relocated highway could be constructed adjacent to the high water line of the inundated section (Western Engineers, 1979a).

The Wolf Creek Reservoir would inundate a ranch suspension bridge with an exposed gas pipeline.

MINERALS

All project facilities would be subject to valid existing prior mineral rights. Those project facilities affected by these rights along with a list of the rights in question are found in Chapter 3 and table 3-11.

Transfer of the Bonanza plant site to ownership of Deseret could be accomplished only if the oil shale withdrawal were modified or lifted on the lands to be sold.

Should the site be restored to multiple use status, it would be available for appropriation. These lands are presently open under mineral leasing laws. Modification of oil shale withdrawal on the Bonanza site would not affect the existing environment. Deep gilsonite veins beneath the Bonanza plant site would still be minable as they do not pass beneath any foundation structures and no subsidence would be expected. Through stipulation to the right-of-way or sale, surface use of the site for mineral extraction would be allowed.

The refuse disposal area located on Federal land containing mineable coal seams would have minimal effect on its future mining because the coal beds in the area are no more than 8 feet thick and overburden thickness is at least 1,000 feet. Locations for the plant site facilities and deep mining of gilsonite would be compatible.

LAND USE PLANS AND CONTROLS

Conflicts with BLM management plans noted in Chapter 3 which would occur with implementation of the project alternatives are shown in table 4-10. In as much as the NEPA process is a form of planning, land use conflicts would be adjusted by decisions made on the basis of this Final Moon Lake power plant EIS. This would be done consistent with the BLM and USFS planning regulats, which provide for amendments. A decision by the Federal government to implement this project would be a decision to alter the existing land use planning objectives listed in table 4-10. The Category 2 MFP Amendment Procedures as outlined in BLM Instruction Memorandum No. 80-401 are being used for planning amendments on BLM-administered lands. These procedures include a 30-day protest period which is concurrent with the 30-day waiting period noted on the cover sheet of this Final EIS.

Uintah County zoning ordinance provisions could accommodate the Bonanza plant and raw material supply systems. The Rangely plant and raw material supply systems could be accommodated under provisions of the Rio Blanco County public way and public utility land use priority zoning. The Deserado Mine operation would be permitted in the agricultural zone under provisions of a Rio Blanco County Board of County Commissioners approved special use permit.

As part of the land-use planning process, BLM has prepared an unsuitability report for the Deserado Logical Mining Unit (LMU). The report discusses the 20 unsuitability criterion, contained in the Federal Coal Management Regulations (43 CFR 3400), and the effects on these criteria by the Deserado Mine. The full report is contained in Appendix 25 in the Final EIS.

Of the 20 criterion, four would be impacted by the proposed mine Historic Lands and Sites, Federally Listed Endangered Species, Golden Eagles Nest, and Floodplains. All projected impacts would be reduced adequately through lease stipulation to declare the LMU suitable for leasing (see Appendix 25).

TABLE 4-10

Conflicts With Existing BLM Land Use Plans

Resource	Plan Recommendation	Conflicts With Plan
Vernal District, Utah		
Wildlife	Restrict activities on antelope fawning areas, May 1-June 15.	Construction, operation, and maintenance at Bonanza site, conveyor, and water pipeline routes.
Land Uses	Restrict rights-of-way to designated corridors.	Portions of conveyor, slurry pipeline, railroad, and on- and off-highway truck haul are outside designated corridors.
Recreation	Preserve open spaces. No man-made intrusions on Green River.	All project activities would introduce intrusions to open space.
Watershed	Increase ground cover.	Collector wells for Green River water source. Construction and occupancy on Bonanza site, coal and water supply systems would negatively affect ground cover.
Craig District, Colorado		
Wildlife	Improve mule deer habitat through modification of pinyon-juniper.	Activity around Deserado Mine area would displace mule deer and negate objectives of pinyon-juniper modification.
	Protect wildlife watering areas.	Deserado Mine area and Rangely site may preclude wildlife use of reservoirs.
	Restrict activities on critical antelope winter range, December 1-March 31.	Activity at the Deserado Mine area would degrade range condition and interrupt antelope use.
	Prohibit land use activity that would deter wildlife migration routing.	Conveyor belt route would cross two mule deer migration routes.

(continued)

TABLE 4-10 (concluded)

Resource	Recommendation	Conflicts
	Preserve raptor nesting and perching trees within 0.5 mile radius of active raptor nests.	Several raptor nests occur within 0.5 mile of Rangely site, Deserado Mine area, coal and water supply systems. Construction activities may conflict if trees utilized by raptors are removed.
	Prohibit land use activity within 0.25 mile of any raptor nest that would adversely impact nest productivity, March 1-July 31.	Construction and utilization of mine refuse haul road, conveyor belt, and rerouting of Staley Gordon Mine Road.
	Protect 88 miles of bald eagle habitat along White River riparian woodlands.	Deserado Mine portal would conflict with river bottom habitat by increases in human disturbance.
Land Uses	Restrict right-of-way to designated corridors.	Portions of conveyor and Rangely site are outside designated corridors.

SOCIOECONOMIC IMPACTS

UNIT 1 SCENARIO

This section presents the projected socioeconomic impacts of development of unit 1 of the power plant and the coal supply system including the Deserado Mine. Impacts are compared to the existing socioeconomic conditions as described in Chapter 3. The impacts of both the construction and operation of the Bonanza and Rangely sites are discussed. The effects of the power plant and mine overlap and are analyzed jointly.

Employment Projections (Unit 1)

The generating station and coal supply system would require an estimated peak work force of 1,035 in 1984. Table 2-5 of the Draft EIS shows the number of construction and operational workers that would be required from 1981 through 1985.

Permanent operational personnel would be required beginning in 1981 and would increase through 1985, stabilizing at 474 employees. A total of 172 indirect jobs are expected to be created locally as a result of this influx of permanent workers. The mining personnel would build up more gradually due to the long lead time involved in opening the mine. Also, the addition of mine workers as plant construction employment declines would help stabilize employment and the demand for community services in the area.

Population Projections and Residential Distribution (Unit 1)

The peak construction work force would occur in 1984 and, together with the operating personnel and indirect employment, the total peak population would be 2,548 people. With the passing of the peak project employment, the new population would begin to decline leaving a residual permanent population level of 1,943 individuals (approximately 497 families and 55 single individuals).

Residential distributions were projected to give an idea of where the population impacts would occur and are estimated to be within ±10 percent of actual numbers.

Bonanza Site Development

Table 4-11 lists the anticipated residential distribution pattern that would result should the plant be built at the Bonanza site.

The population changes from the peak year (1984) to the stable level (1985) are -48 percent for Vernal and +22 percent for Rangely. The population of Dinosaur could increase by about 31 percent in 1984 (Moffat County, 1981).

Table 4-12 shows total population and percentage increases for 1981, 1984 (peak), and 1985 (stable project-related population) for Vernal, Rangely, and the total.

Rangely Site Development

Should the generating station be constructed at the Rangely site, the residential distribution patterns are projected to be as shown in table 4-13.

The project-related population would peak in 1984 then decline to a stable level in 1985. This would be a 30-percent decrease from the peak for

TABLE 4-11

Projected Peak Residential Distribution[a] for Bonanza Site Development (Unit 1)

	1981	1982	1983	1984	1985
Vernal	313	644	970	1,267	656
Maeser	51	105	153	204	105
Rangely	263	541	678	656	802
Dinosaur	44	90	123	136	120
Jensen	23	48	76	101	51
Meeker	43	89	85	57	112
Other	39	81	109	127	97
Total	776	1,598	2,194	2,548	1,943

Source: Burns and McDonnell, 1979a.

[a] Population estimates for individual communities are expected to be within ±10 percent of the actual number of project-related people that would move into these communities.

TABLE 4-12

Population Projections for Bonanza Site Development (Unit 1)

	Total	Rangely	Vernal
1981			
Without Project	31,120	3,700	8,750
Due to Project	776	263	313
Percent Change	2.4	7.1	3.6
1984			
Without Project	50,598	9,300	11,025
Due to Project	2,548	656	1,267
Percent Increase	5.0	7.1	11.5
1985			
Without Project	47,684	9.100	12,555
Due to Project	1,943	802	656
Percent Increase	4.1	8.8	5.2

TABLE 4-13

Projected Peak Residential Distribution[a] for Rangely Site Development (Unit 1)

Community	1981	1982	1983	1984	1985
Vernal	234	482	636	728	513
Maeser	40	81	104	119	84
Rangely	333	687	984	1,156	942
Dinosaur	48	98	136	160	126
Jensen	16	34	44	51	37
Meeker	65	134	181	206	144
Other	40	82	109	128	97
Total	776	1,598	2,194	2,548	1,943

Source: Burns and McDonnell, 1979a.

[a] Population estimates for individual communities are expected to be within ±10 percent of the actual number of project-related people that would move into these communities.

TABLE 4-14

Population Projections for Rangely Site Development (Unit 1)

	Total	Rangely	Vernal
1981			
Without Project	31,120	3,700	8,750
Due to Project	776	333	234
Percent Change	2.4	9.0	2.7
1984			
Without Project	50,598	9,300	11,025
Due to Project	2,548	1,156	728
Percent Change	5.0	12.4	6.6
1985			
Without Project	47,684	9,100	12,555
Due to Project	1,943	942	513
Percent Increase	4.1	10.4	4.1

Vernal and 19 percent for Rangely. Dinosaur's population could increase by approximately 37 percent in 1985 (Moffat County, 1981).

Table 4-14 shows total population impacts on Vernal, Rangely, and the area.

Housing (Unit 1)

Regardless of the actual location of the plant site, increased housing demand would place a burden on the current housing supply of both Rangely and Vernal. The communities of Vernal and Rangely would either face a surplus housing situation following the peak population period or would have to contend with mobile homes or temporary camps during the peak period. However, Rangely has several new subdivisions and mobile home parks planned that are capable of containing approximately 900 units. Also, Rangely has applied for approximately 2,500 additional acres of land for development. Vernal/Ashley Valley has sufficient acreage to accommodate the housing requirements of additional people.

Bonanza Site Development

For a Bonanza site development, table 4-15 shows the approximate number of housing units required for the years 1981 through 1985. The peak housing demand attributed to the project would occur in 1984 with a total need of 770 units. About 380 of these units would be needed in Vernal and 203 in Rangely. In 1985 the housing requirements for Vernal would be reduced by nearly 49 percent to 182 units, and Rangely's housing needs would be increased by about 7 percent to 218 units. The 1985 housing requirements would remain relatively stable for the life of the project.

Rangely Site Development

Table 4-16 shows the expected project-related peak housing demand by year for Rangely and Vernal. For Vernal, there would be a steady build-up to 1984, followed by a decline in 1985 to the permanent level of 143, a reduction of 35 percent. Rangely would show a similar pattern, reaching a peak of 380 in 1984 then dropping 31 percent to 261 in 1985.

Community Services (Unit 1)

Education

Bonanza Site Development

Student enrollment projections for both the Uintah County and Rangely (RE-4) School Districts by school year are shown in table 4-17. The project-related enrollments for the Rangely District are more constant than for the Uintah District. However, during the peak impact, which would occur in the 1983-1984 school year, the new students would make up a much larger percentage of the Rangely District students (22 percent) than of the new students within the Uintah School District (7 percent). For Rangely to maintain the present pupil/teacher ratio, 11 new teachers would have to be hired. Fourteen new teachers would have to be hired in the Uintah School District to maintain the present ratio. Uintah District facilities are already being used beyond capacity and would need up to nine new class rooms over the long term to

TABLE 4-15

Projected Peak Housing Demand
Bonanza Site Development
(Unit 1)

Housing Type	1981	1982	1983	1984	1985
			Rangely		
Single Family	19	40	58	71	97
Apartment	9	19	22	24	26
Mobile Home	36	75	87	85	92
Other	22	45	40	23	3
Total	86	180	207	203	218
			Vernal		
Single Family	23	48	84	107	81
Apartment	11	22	32	41	22
Mobile Home	43	89	124	158	76
Other	25	51	55	74	3
Total	102	210	295	380	182
			Project Total[a]		
Single Family	58	119	190	237	241
Apartment	28	57	73	85	65
Mobile Home	107	221	282	321	224
Other	65	133	129	127	10
Total	258	530	674	770	540

Source: Burns and McDonnell, 1979a.

[a] These figures include housing in communities other than Rangely and Vernal.

TABLE 4-16

Projected Peak Housing Demand
Rangely Site Development
(Unit 1)

Housing Type	1981	1982	1983	1984	1985
Rangely					
Single Family	28	58	88	111	117
Apartment	13	27	34	69	31
Mobile Home	52	107	127	146	109
Other	32	65	55	54	4
Total	125	257	304	380	261
Vernal					
Single Family	12	25	53	66	64
Apartment	6	13	20	24	17
Mobile Home	26	53	81	91	60
Other	19	39	39	39	2
Total	63	130	193	220	143
Project Total[a]					
Single Family	58	119	190	237	241
Apartment	28	57	73	85	65
Mobile Home	107	221	282	321	224
Other	64	133	129	127	9
Total	257	530	674	770	539

Source: Burns and McDonnell, 1979a.

[a] These figures include housing in communities other than Rangely and Vernal.

TABLE 4-17

Student Enrollment Projections
Bonanza Site Development (Unit 1)

	School Years					
	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86
Uintah School District						
District Projection	5,164	5,330	5,374	5,500	5,667	5,898
Project Impact	19	93	214	378	316	212
Total Students	5,183	5,423	5,588	5,878	5,983	6,110
Rangely School District						
District Projection	610	635	660	710	760	814
Project Impact	12	59	113	154	138	198
Total Students	622	694	773	864	898	1,012

TABLE 4-18

Student Enrollment Projections
Rangely Site Development (Unit 1)

	School Years					
	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86
Uintah School District						
District Projection	5,164	5,330	5,374	5,500	5,667	5,898
Project Impact	14	66	136	222	183	168
Total Students	5,178	5,396	5,510	5,722	5,850	6,066
Rangely School District						
District Projection	610	635	660	710	760	814
Project Impact	16	83	178	291	260	251
Total Students	626	718	838	1,001	1,020	1,065

handle project-related students. Rangely District (R-4) schools have adequate capacity to facilitate project-related students.

Rangely Site Development

Student enrollment projections for the Uintah County and Rangely (RE-4) School Districts are shown in table 4-18. The project-related enrollments for the Rangely District are more constant than for the Uintah District. However, during the peak impact, which would occur in the 1983-1984 school year, the new students would make up a much larger percentage of the Rangely District students (29 percent) than of the new students within the Uintah School District (4 percent). If Rangely desired to maintain the present pupil/teacher ratio, 20 new teachers would have to be hired. The Uintah School District would need eight new teachers.

Rangely District (R-4) school facilities are adequate to handle the project-related student increases without further construction. Uintah District would have to construct up to seven new classrooms to handle project-related student increases.

Sewer and Water Systems

Vernal currently operates overloaded and outdated water and sewage treatment systems. The city has begun to improve and expand both systems to a capacity of 20,000 people. However, should these improvements not be completed in time to accommodate the expected peak impact of the project, the present systems would be inadequate to handle the projected population increase.

Rangely operates water and sewage treatment facilities to handle a population equivalent of 5,000 and 6,000, respectively. These are designed for expansion to accommodate a population of 10,000. This capacity would be adequate to handle the expected population associated with the project.

Fire Protection

Regardless of the generating station's location, both Vernal and Rangely would need to enlarge their volunteer fire departments to retain present fireman/population ratios. If the plant were built at Bonanza, Vernal would need about 4 and Rangely about 7 additional volunteers at peak population. If built at Rangely, there would be a need for 2 and 12 additional volunteers, respectively. Additional equipment would also be needed in both communities.

Law Enforcement

The increase in population can be expected to result in increased crime. The actual degree to which increased crime would occur cannot be predicted.

At the present time, Vernal has 13 city police officers and Rangely has 4. This is 1.8 and 2.0 officers per 1,000 population, respectively. The recommended standard of the Federal Bureau of Investigation (FBI) is 1.5 officers per 1,000 population.

Applying this standard shows the need for 1 more officer in each community to maintain that standard if the plant were built at Bonanza. If it were built at the Rangely site, the Town of Rangely would need 1 additional officer and Vernal would just approach the minimum ratio without any additional officers.

Health Facilities and Personnel

The Uintah County Hospital in Vernal and the Rangely District Hospital in Rangely are the major health care centers in the area. The administrators of each have indicated that the hospitals are currently being used at 50 and 22 (LeMoine,1980) percent of capacity, respectively.

At projected peak population levels in 1984, regardless of the site, each community would need at least one more full time physician. To attain their respective state averages, Vernal would need six more full-time physicians and Rangely would need four.

Local Government Impacts (Unit 1)

Impacts on local governments would consist primarily of the increased demand for services which would necessitate a general increase in expenditures.

The Moon Lake project would contribute to the financing of these services through taxation of project-related population and company-owned facilities. A property tax would apply to both individuals and facilities, while sales tax would be paid only by individuals. In addition, a portion of existing obligations would be paid be in-migrating project-related employees who would have to pay utility hookup and user fees. To the extent the indebtedness is spread into the future, the project and its employees would pay for a more-than-proportionate per capita share of those facilities.

Because impacts from the project are expected to cross state, county, and municipal lines, there would be problems from inequitable distribution of impacts and tax revenues. This could be especially true for the Town of Dinosaur in Moffat County, Colorado, which could receive significant impacts from the project, but without the benefit of adding either the plant or mine to its tax rolls. Moffat County (1981) states that "...the town is presently operating at capacity population...".

Colorado has a coal severance tax of 35¢ per ton; therefore, Colorado would receive about $455,000 annually regardless of where the plant were located. Of the total severance tax revenues, only 7 1/2 percent would be allocated directly to Rangely and Rio Blanco County based on the Colorado severance tax statute. Any additional severance tax allocations would be evaluated by the Department of Local Affairs, and would be weighed against competing demands from other counties and cities throughout Colorado (see Severence Tax Yield Table in Appendix 11 of this Final EIS).

Cost estimates for providing county services for population increases are based on 1979 per capita costs of $725.17 for Uintah County (UBAG, 1980) and $1,005.87 for Rio Blanco County (Rio Blanco, 1980).

Bonanza Site Development

Analyzing the distribution (Table 4-19) for the peak year of construction shows that, if the plant were built at the Bonanza site, there would be 1,471 new residents in the Vernal area (including Maeser) and 656 in Rangely. This would mean that Rangely would have to support the impact of 279 residents related to the plant without the benefit of revenue from the plant. Correspondingly, the Vernal area would have to support the impact of 240 residents related to the mine without the benefit of revenue from the mine.

A similar situation applies to the operating workers as shown in table 4-19.

TABLE 4-19

Residential Distribution[a]
Bonanza Site Development (Unit 1)

Plant		Coal Supply System		Total	
Vernal	Rangely	Vernal	Rangely	Vernal	Rangely
Peak Construction (1984)					
1,231	279	240	377	1,471	656
Operation (1985)					
296	67	465	735	761	802

[a] Actual population for individual communities is expected to be within ±10 percent of figures shown.

Table 4-20 shows the estimated property tax revenues from the project facilities and the estimated cost and differences for each county. Revenue figures shown do not include revenue from sales and property taxes paid by project-related population, which would accrue to the local governments. As shown in the table, the plant would generate revenues in excess of the estimated costs in Uintah County while the mine would not generate sufficient revenues to cover the additional costs in Rio Blanco County during the first 2 project years. Substantial deficits in tax revenues would occur unti the coal mine was fully developed. However, these deficits could be off-set to some degree by local sales tax and property tax revenues paid by the project employees and their families. Also see Appendix 11 Figure 2.

Estimates of property tax revenue generated by Deseret-owned facilities do not include depreciation, tax credits, or exemption, etc. As such, they overestimate the actual revenue that would be realized from the project.

Rangely Site Development

If the plant were built at the Rangely site, the peak new population in 1984 in the Vernal area would amount to 847 and in Rangely, 1,156 (table 4-21). In this case, Vernal would receive 607 people due to the plant, along with 240 people from the coal supply system, and Rangely would receive 779 people due to the plant. This would mean that the Vernal area would have to support the impact of 847 people related to the plant and the mine without the benefit of revenues from any of the project facilities except transmission lines. However, individuals would pay property and sales taxes to the local governments where they live.

A similar situation applies to the operating workers as shown in table 4-21.

TABLE 4-20

Estimated Costs and Property Tax Revenues for Uintah and Rio Blanco Counties Bonanza Site Development (Unit 1)

	Uintah			Rio Blanco		
Year	Revenue (Plant)	Costs[a]	Difference	Revenue (Mine)[b]	Costs[a]	Difference
1981	$ 605,000[c]	$ 304,000	$ 301,000	$ 69,000	$359,000	$-290,000
1982	2,426,000[c]	609,000	1,817,000	249,000	762,000	-513,000
1983	5,230,000[c]	915,000	4,315,000	946,000	937,000	+9,300
1984	5,138,000[c]	1,197,000	3,941,000	1,087,000	899,000	+188,000
1985	4,826,000	629,000	4,197,000	1,351,000	1,081,000	+270,000
1986	4,692,000	629,000	4, 063,000	1,341,000	1,081,000	+260,000

Note: Detail of projected revenue is presented in Figures 2 and 4 of Appendix 11.

[a] Cost estimates for providing county services for population increases are based on 1979 per capita costs of $725.17 for Uintah County and $1,005.87 for Rio Blanco County. These figures were provided by the respective counties.

[b] Revenues estimated using 1980 mill rate of 36.053.

[c] Provided from Uintah County Assessor. All other years calculated using mill rate of 35.0.

TABLE 4-21

Residential Distribution
Rangely Site Development (Unit 1)

Plant		Coal Supply System		Total	
Vernal	Rangely	Vernal	Rangely	Vernal	Rangely
Peak Construction (1984)					
607	779	240	377	847	1,156
Operation (1985)					
132	207	465	735	597	942

Table 4-22 shows the estimated property tax revenues from the project facilities (not including taxes paid by individuals) and the estimated costs and differences for each county. As shown in the table, the plant and mine would generate revenues in excess of the estimated costs in Rio Blanco County while no revenues from project facilities would be generated in Uintah County.

These figures do not include depreciation, tax credits, exemptions, etc. As such, they overestimate the actual revenue that would be realized from the project.

UNITS 1 AND 2 SCENARIO

Introduction

This section presents the projected socioeconomic impacts of development of units 1 and 2 of the power plant and the coal supply system including the Deserado Mine. The impacts of both the construction and operation of the Bonanza and Rangely sites are discussed. The effects of the plant and mine overlap and are analyzed jointly.

Construction of the initial unit would begin during the first quarter of 1981 followed by the commencement of unit 2 construction in the third quarter of 1982, an 18-month lead time differential. This scenario presents the maximum impacts that would be expected to occur from the project.

Employment Projections (Units 1 and 2)

The generating station and coal supply system would require a projected peak work force of 1,613 in 1985. Table 2-6 shows the number of construction and operational workers that would be required from 1981 through 1987.

Permanent operational personnel would be required beginning in 1981 and would increase through 1987, stabilizing at 794 employees. A total of 300 indirect jobs are expected to be created locally due to this influx resulting in a total project-related permanent work force of 1,094 in 1987.

Population Projections and Residential Distribution (Units 1 and 2)

The peak construction work force would occur in 1985 and together with the operating personnel and indirect employment, the resulting total peak population would be 5,034 people. With the passing of the peak employment

TABLE 4-22

Estimated Costs and Property Tax Revenues for Uintah and Rio Blanco Counties Rangely Site Development (Unit 1)

	Rio Blanco			Uintah		
Year	Revenue (Plant & Mine)[a]	Costs[b]	Difference	Revenue	Costs[b]	Difference
1981	$ 735,000	$ 473,000	$ 262,000	--	$222,000	$-222,000
1982	2,197,000	975,000	1,222,000	--	456,000	-456,000
1983	4,260,000	1,377,000	2,883,000	240,000	598,000	-358,000
1984	7,709,000	1,612,000	6,097,000	240,000	685,000	-445,000
1985	7,777,000	1,283,000	6,494,000	240,000	484,000	-244,000
1986	7,569,000	1,283,000	6,286,000	130,000	484,000	-354,000

Note: For details of projected revenues, see Figure 6 of Appendix 11.

[a] Revenues estimated using 1980 mill rate of 36.053.

[b] Cost estimates for providing county services for population increases are based on 1979 per capita costs of $725.17 for Uintah County (UBAG, 1980) and $1,005.87 for Rio Blanco County (1980). These figures were provided by the respective counties.

level, the new population would begin to decline leaving an estimated residual permanent project-related population of 3,143 in 1987.

Residential distributions were projected to give an idea of where the population impacts would occur and are estimated to be within ±10 percent of actual numbers.

Bonanza Site Development

Table 4-23 lists the anticipated residential distribution by year that would result should the generating station be built at the Bonanza site.

Table 4-24 shows total population and percentage increases for 1981, 1985 (peak), and 1987 (stable project-related population) for Vernal, Rangely, and the total.

With the passing of the peak in 1985, the population would decline 48 percent in Vernal and 23 percent in Rangely by 1987. Vernal and Rangely would then have approximately 36 percent and 39 percent respectively of the total permanent project-related population of 3,143. The remaining 25 percent would be distributed throughout the small communities of Uintah, Rio Blanco, and Moffat Counties. Overall, 47 percent of the permanent project-related population would reside in Utah and 53 percent in Colorado. Dinosaur in Moffat County shows a 65-percent population increase over the present level in 1985.

Rangely Site Development

Should the generating station be constructed at the Rangely site, the residential distribution patterns are projected in table 4-25 and table 4-26.

With this alternative, Rangely would retain about 67 percent of its peak population as permanent residents, while Vernal would retain about 57 percent. About 48 percent of the total permanent population would be in Rangely and 27 percent in Vernal. Overall, 35 percent of the permanent project-related population would reside in Utah and 65 percent in Colorado. Dinosaur's population could increase by 72 percent in 1985.

Housing (Units 1 and 2)

Regardless of the site's location, increased housing demand would place a burden on the current limited middle income housing supply of both Rangely and Vernal. Both communities would either face a surplus housing situation following the peak population period or would have to contend with mobile homes or temporary camps during the peak period.

Bonanza Site Development

For a Bonanza site development, table 4-27 shows the approximate number of housing units required for the years 1981 through 1987. The peak housing demand accountable to the project would occur in 1985 with a total need of 1,516 housing units. About 681 of these units would be needed in Vernal and 447 in Rangely during 1985. In 1987 the housing requirements for Vernal would be reduced by nearly 52 percent to 330 units, and Rangely's housing needs would be reduced by about 21 percent to 352 units. The 1987 numbers would remain relatively stable for the life of the project.

TABLE 4-23

Projected Peak Residential Distribution[a] for Bonanza Site Development (Units 1 and 2)

	1981	1982	1983	1984	1985	1986	1987
Vernal	311	740	1,307	1,915	2,206	2,038	1,137
Maeser	51	122	210	307	353	326	183
Rangely	261	622	761	859	1,578	1,459	1,221
Dinosaur	45	106	148	192	284	263	191
Jensen	24	57	102	153	173	159	89
Meeker	44	104	84	63	188	174	165
Other	40	94	138	180	252	231	157
Total	776	1,845	2,750	3,669	5,034	4,650	3,143

Source: Burns and McDonnell, 1979a.

[a] Figures given for individual communities are expected to be within ± 10 percent of actual number of project-related people that would settle there.

TABLE 4-24

Population Projections for Bonanza Site Development (Units 1 and 2)

	Total	Rangely	Vernal
1981			
Without Project	31,120	3,700	8,750
Due to Project	776	261	311
Percent Change	2.4	7.1	3.6
1985 (Peak Year)			
Without Project	47,684	9,300	12,555
Due to Project	5,034	1,578	2,206
Percent Increase	10.6	17.0	17.6
1987 (Permanent)			
Without Project	55,502	9,100	13,283
Due to Project	3,143	1,221	1,137
Percent Increase	5.7	13.4	8.6

TABLE 4-25

Projected Peak Residential Distribution[a] for Rangely Site Development (Units 1 and 2)

	1981	1982	1983	1984	1985	1986	1987
Vernal	239	554	806	1,066	1,457	1,318	837
Maeser	39	93	132	174	238	214	136
Rangely	332	791	1,217	1,639	2,257	2,130	1,515
Dinosaur	46	115	171	229	315	294	203
Jensen	16	39	57	75	102	93	60
Meeker	67	161	230	303	414	371	235
Other	37	92	137	183	250	230	157
Total	776	1,845	2,750	3,669	5,034	4,650	3,143

Source: Burns and McDonnell, 1979a.

[a] Figures given for individual communities are expected to be within ±10 percent of actual number of project-related people that would settle there.

TABLE 4-26

Population Projections for Rangely Site Development (Units 1 and 2)

	Total	Rangely	Vernal
1981			
Without Project	27,231	3,700	8,750
Due to Project	776	332	233
Percent Change	2.8	9.0	2.7
1985 (Peak Year)			
Without Project	47,684	9,300	12,555
Due to Project	5,034	2,305	1,426
Percent Increase	10.6	24.8	11.4
1987 (Permanent)			
Without Project	55,502	9,100	13,283
Due to Project	3,143	1,515	837
Percent Increase	5.7	16.6	6.3

TABLE 4-27

Projected Peak Housing Demand For Bonanza Site Development (Units 1 and 2)

Housing Type	1981	1982	1983	1984	1985	1986	1987
Rangely							
Single Family	19	46	61	93	134	124	132
Apartment	9	22	24	28	39	36	35
Mobile Home	36	87	102	138	216	200	171
Other	22	52	50	47	58	52	14
Total	86	207	237	306	447	413	352
Vernal							
Single Family	23	55	94	138	151	142	117
Apartment	10	25	36	51	48	44	31
Mobile Home	42	101	182	278	342	316	163
Other	25	61	92	135	138	128	19
Total	100	242	404	602	681	630	330
Project Total							
Single Family	56	137	207	280	388	356	336
Apartment	27	66	80	99	115	106	90
Mobile Home	105	255	378	473	750	689	446
Other	63	154	188	218	263	242	41
Total	251	612	853	1,070	1,516	1,393	913

Source: Burns and McDonnell, 1979a.

Rangely Site Development

For a Rangely site development, table 4-28 shows the approximate number of housing units required for the years 1981 through 1987. The peak housing demand due to the project would occur in 1985 with a total need of 1,516 housing units. About 426 of these units would be needed in Vernal and 698 in Rangely during 1985. In 1987 the housing requirements for Vernal would be reduced by nearly 43 percent to 243 units, and Rangely's housing needs would be reduced by about 31 percent to 482 units. The 1987 housing requirements would remain relatively stable for the life of the project.

Community Services (Units 1 and 2)

Sewer and Water Systems

Bonanza Site Development

Vernal currently operates overloaded and outdated water and sewage treatment systems. The city has begun to improve and expand both systems to a capacity of 20,000 people. However, should these improvements not be completed in time to accommodate the expected peak impact of the project, the present systems would be inadequate to handle the projected increase.

Rangely Site Development

Rangely operates water and sewage treatment facilities to handle a population equivalent of 5,000 and 6,000, respectively. These are designed for expansion to accommodate a population of 10,000. This capacity would be adequate to handle the projected increase. However, should these improvements not be completed in time to accommodate the expected peak impact of the project, the present systems would be inadequate to handle the projected increase.

Law Enforcement

Should the generating station be built at the Bonanza site, the Town of Vernal would need an additional three officers and Rangely would need to add two officers to meet peak requirements.

With a Rangely site development, the Town of Rangely would need an additional two officers and Vernal would need one additional officer at the population peak.

These estimates are based on the FBI standard of 1.5 officers per 5,000 population.

Fire Protection

Regardless of the generating station's location, both Vernal and Rangely would need to enlarge their volunteer fire departments to retain present fireman/population ratios. If the plant were built at Bonanza, Vernal would need 6 and Rangely 16 additional volunteers at peak population. If built at Rangely, there would be a need for 4 and 24 additional volunteers, respectively. Additional equipment would also be needed in both communities.

TABLE 4-28

Projected Peak Housing Demand
For Rangely Site Development
(Units 1 and 2)

Housing Type	1981	1982	1983	1984	1985	1986	1987
Rangely							
Single Family	28	67	95	131	185	170	163
Apartment	13	31	37	46	55	51	85
Mobile Home	52	124	169	233	344	316	215
Other	31	75	81	99	114	105	19
Total	124	297	382	509	698	642	482
Vernal							
Single Family	12	28	58	77	105	97	89
Apartment	6	15	23	27	32	29	24
Mobile Home	26	61	109	147	211	194	119
Other	19	45	57	69	78	72	10
Total	63	149	247	320	426	392	243
Project Total							
Single Family	56	137	207	280	388	356	336
Apartment	27	66	80	99	115	106	90
Mobile Home	105	255	376	473	750	689	446
Other	63	154	190	218	263	242	41
Total	251	612	853	1,070	1,516	1,393	913

Source: Burns and McDonnell, 1979a.

Health Facilities and Personnel

Both Vernal and Rangely have a shortage of health care professionals. To meet minimum health care standards, Vernal would need an additional one or two doctors and Rangely would need an additional two to four doctors. These added doctors would accommodate the increased population accruing from a development at either site. Existing hospital facilities in both communities would be adequate to accommodate the increased population.

Education

Bonanza Site Development

Student enrollment projections for both the Uintah County and Rangely (RE-4) School Districts for each school year are shown in table 4-29. During the peak impact, which would occur in the 1985-1986 school year, the new students would make up a much larger percentage of the Rangely District students (27 percent) than of the new students within the Uintah School District (9 percent).

It is estimated that the Uintah District would have to hire 21 additional teachers and the Rangely District (RE-4) 22, to maintain the present student/-teacher ratios. The Uintah School District is already beyond capacity and over the long term (beyond 1987) would need up to 15 additional classrooms, while the Rangely District (RE-4) would not need additional classroom space for the project-related students (based on 25 students per class).

Rangely Site Development

Table 4-30 shows the student enrollment projections that would be realized should the generating station be constructed at the Rangely site. While the peak would still occur in 1985-86, the greatest impact would occur in Rangely. However, after the peak, Rangely would retain 84 percent of its project-related peak number of students, while Uintah would retain 76 percent. Rangely would need 34 additional teachers and Uintah 13 to maintain current student/teacher ratios at peak. Over the long term (beyond 1987), the Uintah District could require up to 11 additional classrooms while the Rangely District (RE-4) would require four additional classrooms for the project-related students (based on 25 students per class).

Local Government Impacts

Impacts on local governments would consist primarily of the increased demand for services which would necessitate a general increase in expenditures.

The Moon Lake project would contribute to the financing of these services through taxation of the project-related population and company-owned facilities. A property tax would apply to both individuals and facilities, while the sales tax would be paid only by individuals. In addition, a portion of existing obligations would be paid by in-migrating project-related employees who would have to pay utility hookup and user fees. To the extent the indebtedness is spread into the future, the project and its employees would pay for a proportionate per capita share of those facilities.

Because impacts from the project are expected to cross state/county lines, there would be problems from inequitable distribution of impacts and

TABLE 4-29

Student Enrollment Projections for
Bonanza Site Development
(Units 1 and 2)

	School Year						
	1980-1981	1981-1982	1982-1983	1983-1984	1984-1985	1985-1986	1986-1987
UINTAH SCHOOL DISTRICT							
District Projections	5,164	5,330	5,374	5,500	5,667	5,898	6,069
Project Impacts	19	93	248	383	460	572	376
Total Students	5,183	5,423	5,622	5,883	6,127	6,470	6,445
RANGELY SCHOOL DISTRICT (RE-4)							
District Projections	610	635	660	710	760	814	874
Project Impacts	12	59	162	179	192	317	336
Total Students	622	694	822	889	952	1,133	1,210

TABLE 4-30

Student Enrollment Projections for Rangely Site Development
(Units 1 and 2)

	School Year						
	1980-1981	1981-1982	1982-1983	1983-1984	1984-1985	1985-1986	1986-1987
UINTAH SCHOOL DISTRICT							
District Projections	5,164	5,330	5,374	5,500	5,667	5,898	6,069
Project Impacts	14	66	184	274	279	355	271
Total Students	5,193	5,386	5,533	5,709	5,873	6,222	6,269
RANGELY SCHOOL DISTRICT (RE-4)							
District Projections	610	635	660	710	760	814	874
Project Impacts	16	83	217	345	352	498	420
Total Students	626	718	877	1,055	1,112	1,312	1,294

tax revenues. This could be especially true for the Town of Dinosaur, in Moffat County, Colorado, which could receive significant impacts from the project, but without the benefit of adding either the plant or mine to its tax rolls. Moffat County (1981) states that "...the town is presently operating at capacity population...".

Colorado has a coal severance tax of 35¢ per ton; therefore, Colorado would receive about $910,000 annually regardless of where the plant is located. Of the total severance tax revenues, only 7.5 percent ($70,875) would be allocated directly to Rangely and Rio Blanco County based on the Colorado severance tax statute. Any additional severance tax allocations would be evaluated by the Department of Local Affairs, and would be weighed against competing demands from other counties and cities throughout Colorado (see Severence Tax Yield tables in Appendix 11).

Cost estimates for providing county services for population increases are based on 1979 per capita costs of $725.17 for Uintah County (UBAG, 1980) and $1,005.87 for Rio Blanco County (Rio Blanco County, 1980).

Bonanza Site Development

Analyzing the distribution (table 4-31) for the peak year of construction shows that, if the plant were built at the Bonanza site, there would be 2,559 new residents in the Vernal area and 1,578 in Rangely. This would mean that Rangely would have to support the impact of 411 residents related to the plant without the benefit of revenue from the plant. Correspondingly, the Vernal area would have to support the impact of 764 residents related to the mine without the benefit of revenue from the mine.

A similar situation applies to the operating workers as shown in table 4-31.

TABLE 4-31

Residential Distribution[a]
Bonanza Site Development (Units 1 and 2)

Plant		Coal Supply System		Total	
Vernal	Rangely	Vernal	Rangely	Vernal	Rangely
Peak Construction (1985)					
1,795	411	764	1,167	2,559	1,578
Operation (1987)					
570	119	750	1,102	1,320	1,221

[a] Actual population for individual communities is expected to be within ±10 percent of figures shown.

Table 4-32 shows the estimated property tax revenue generated by the Deseret-owned facilities and estimated costs of county services (does not include taxes paid by individuals). As shown in the table, the plant would generate revenues in excess of the estimated costs in Uintah County while the mine would not generate sufficient revenues to cover the additional costs in Rio Blanco County.

TABLE 4-32

Estimated Costs and Property Tax Revenues for Uintah and Rio Blanco Counties Bonanza Site Development (Units 1 and 2)

	Uintah			Rio Blanco		
Year	Revenue (Plant)	Costs[a]	Difference	Revenue (Mine)[b]	Costs[a]	Difference
1981	$ 605,000[c]	$ 295,000	$ 310,000	$ 69,000	$371,000	$-302,000
1982	2,776,000[c]	702,000	2,074,000	266,000	882,000	-616,000
1983	6,254,000	1,236,000	5,018,000	983,000	1,051,000	-67,000
1984	7,072,000	1,812,000	5,260,000	1,153,000	1,178,000	-26,000
1985	8,501,000	2,086,000	6,415,000	1,897,000	2,171,000	-275,000
1986	8,863,000	1,922,000	6,941,000	2,024,000	2,012,000	+12,000

Note: Detail of projected revenue is presented in Figures 2a and 4a of Appendix 11.

[a] Cost estimates for providing county services for population increases are based on 1979 per capita costs of $725.17 for Uintah County and $1,005.87 for Rio Blanco County. These figures were provided by the respective counties.

[b] Revenues calculated using 1980 mill rate of 36.053.

[c] Uintah County Commission (1980) all years calculated using mill rate of 35.0.

These figures do not include depreciation, tax credits, exemption, etc. As such, they overestimate the actual revenue that would be realized from the project.

Rangely Site Development

Table 4-33 shows the projected residential distribution by project component.

TABLE 4-33

Residential Distribution[a]
Rangely Site Development (Units 1 and 2)

Plant		Coal Supply System		Total	
Vernal	Rangely	Vernal	Rangely	Vernal	Rangely
Peak Construction (1985)					
907	1,125	788	1,132	1,695	2,257
Operation (1985)					
245	382	728	1,133	973	1,515

[a] Actual numbers for individual communities are expected to be within ±10 percent of figure shown.

If the plant were built at the Rangely site, the new peak population in the Vernal area would amount to 1,695 and in Rangely, 2,257. In this case, Vernal would receive 907 people due to the plant, along with 788 people from the mine and conveyor, and Rangely would receive 1,132 people due to the plant. This would mean that the Vernal area would have to support the impact of 1,695 people without the benefit of revenues from either the plant or coal supply system. However, individuals would pay property and sales taxes to the local governments where they live.

A similar situation applies to the operating workers as shown in table 4-33.

Table 4-34 shows the estimated property tax revenues from the project facilities and the estimated costs for each county. As shown in the table, the plant and mine would generate revenues in excess of the estimated costs in Rio Blanco County, while no revenues from project facilities would be generated in Uintah County to cover the additional costs due to the project-related personnel.

These figures do not include depreciation, tax credits, exemptions, etc. As such, they overestimate the actual revenue that would be realized from the project.

QUALITY OF LIFE

Community Homogeneity

In either Vernal or Rangely, the influx of newcomers into the project area could alter the prevailing social order by the importation of value

TABLE 4-34

Estimated Costs and Property Tax Revenues for Uintah and Rio Blanco Counties (Rangely Site Units 1 and 2)

	Rio Blanco			Uintah		
Year	Revenue (Plant & Mine)[a]	Costs[b]	Difference	Revenue	Cost[b]	Difference
1981	$ 735,000	$ 470,000	$ 265,000	--	$ 224,000	$-224,000
1982	2,465,000	1,130,000	1,335,000	--	524,000	-524,000
1983	5,805,000	1,713,000	4,092,000	240,000	759,000	-519,000
1984	10,622,000	2,298,000	8,324,000	240,000	1,004,000	-764,000
1985	13,275,000	3,161,000	10,114,000	130,000	1,371,000	-1,241,000
1986	13,053,000	2,957,000	10,906,000	--	1,240,000	-1,110,000

Note: For detail of projected revenue, see Figure 5 of Appendix 11.

[a] Revenue calculated using 1980 mill rate of 36.053.

[b] Cost estimates for providing county services for population increases are based on 1979 per capita costs of $725.17 for Uintah County and $1,005.87 for Rio Blanco County. These figures were provided by the respective counties.

systems different from that of long-time residents. Institutions whose functions comprise the organized sociocultural life, particularly religious, educational, and political, would be altered by newcomers. Long-standing channels of communication among various existing interest groups would be disrupted. The influx of workers and families would constitute a large new constituency which may have different attitudes and expectations. Consequently, previous political issues and concerns may be fragmented or replaced.

However, the project area has experienced substantial energy-related growth since World War II. Therefore, it can be expected that typical boomtown scenario impacts of conflicts between long-time residents and newcomers with resultant changes in community structures would be considerably less than in similar communities that have not had prior experiences with energy development.

Public Attitudes

Local residents would generally feel favorable toward newcomers working on energy-related projects until an unpredictable threshold of competition and apparent degradation of perceived social values would be reached.

Quality of Life Indicators

Experience with energy-impacted communities in other western states demonstrates that sudden changes in sociocultural patterns cause corresponding increases in rates of alcoholism, drug abuse, mental illness, divorce, and juvenile delinquency. Normally, these problems are experienced by newcomers unaccustomed to their new living conditions. Long-time residents would be affected most by feelings of inadequacy (Susskind and O'Hare, 1977). Informal and formal community structures would undergo stress as different institutional roles adapt to accommodate the needs of a larger and more diverse population. Interviews with long-time residents of similar energy-impacted communities have characterized their community during and after the boom period as less relaxed, friendly, traditional, isolated, harmonious, and more expensive, difficult, progressive, and competitive (Cortese and Jones, 1977). Reliable models are unavailable to do a quantitative predictive analysis of these social phenomena. Rapid population growth may be expected to produce increased incidences of social ills at a greater than proportional rate with population increases.

Increased crime would also be an evident social cost of energy-related growth. Criminal activity could be expected to involve predominantly nonviolent crimes, such as burglary and vandalism, rather than crimes against persons.

Since the project area has already experienced substantial energy-related growth, the community structures have been developing to administer additional changes in sociocultural patterns.

CUMULATIVE SOCIOECONOMIC IMPACTS

Employment and population changes in Uintah, Rio Blanco and Moffat Counties as a result of the proposed Moon Lake project would be moderate (see figure 4-4). However, in conjunction with other energy-related projects that could affect these counties within the same time frame, the potential socioeconomic impacts within the area could be extreme.

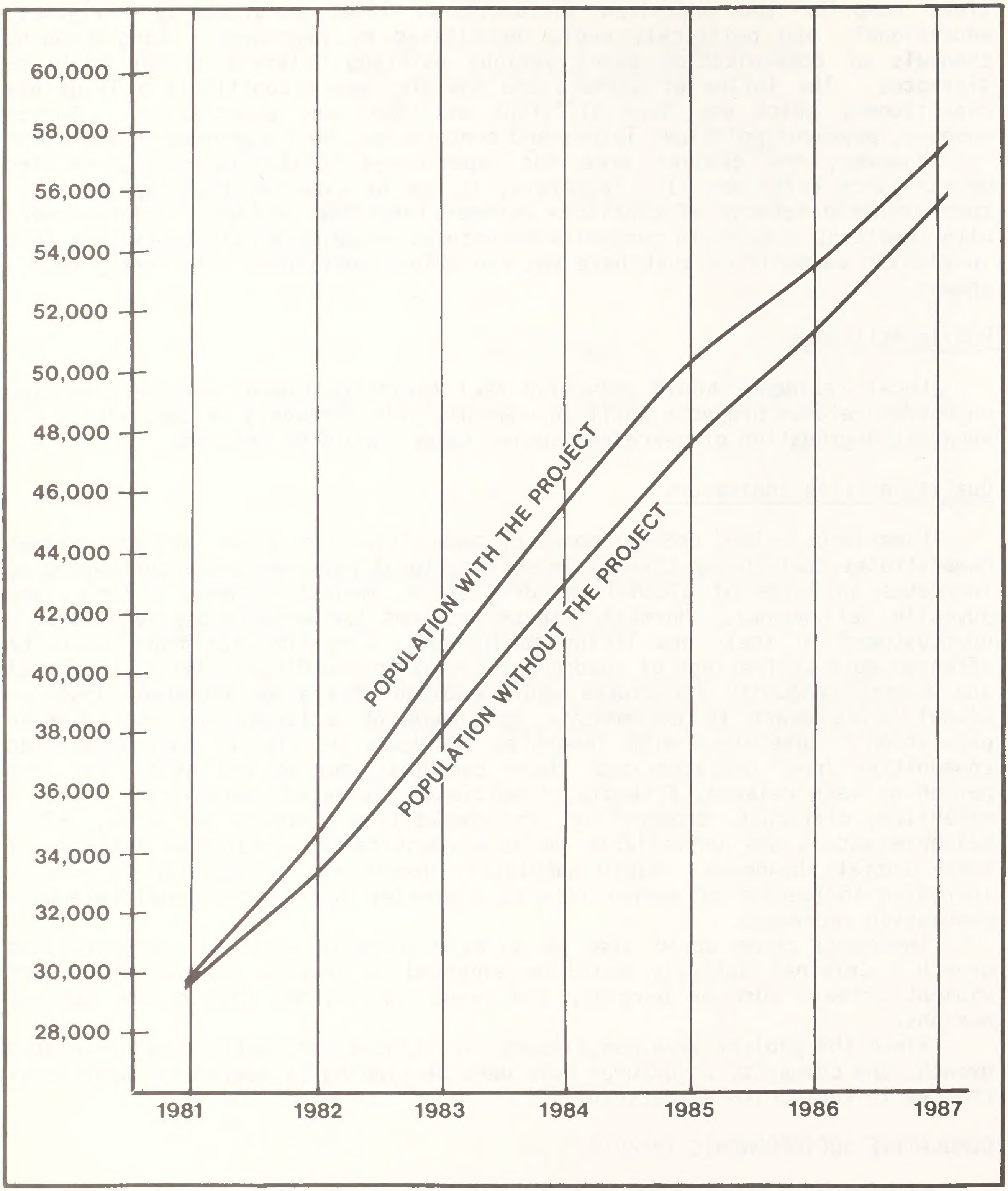

FIGURE 4-4

POPULATION PROJECTIONS WITH AND WITHOUT THE MOON LAKE PROJECT

Eleven projects, seven in Colorado and four in Utah, have the potential of affecting some of the same area in northeastern Utah and northwestern Colorado as would the Moon Lake project (see table 4-35). In assessing the employment projections shown in table 4-35, it is important to note that for the Moon Lake project peak, projected for 1985, the power plant and Deserado Mine combined work force would amount to only 17.1 percent of the total work force of the 11 energy-related projects in the area. This would result in a relatively small proportion of the region's potential cumulative energy-related population increase. Projected new populations for the study area are shown in table 4-36.

Housing requirements are shown in table 4-37. The need for temporary housing and the use of camping facilities also would increase. To help alleviate adverse regional socioeconomic effects, the WRSP is planning a mobile home park, with attendant commercial and recreational facilities to be located at Bonanza (Uintah Basin Association of Governments and Utah Energy Office, 1979).

It should be recognized that all the developments most likely would not take place as scheduled or planned, thus spreading the impacts over a longer time period. In any case, the demands for housing, education, water, and other services would most likely expand to several times present capacities. The needs of local communities would outstrip their financial resources requiring them to rely on State and Federal technical and financial assistance. The present rural lifestyle would also evolve into a more urban form.

While there would be many increased costs associated with the developments, there would also be many benefits. Improved services would benefit both local and nonlocal residents of area communities. The resulting increases in retail trade and services would provide greater variety, competitiveness and possibly reduced prices due to higher volume. The sum cumulative effect of the proposed projects would be to increase the overall socioeconomic diversity of the area.

SECONDARY INFLUENCE ZONE

The recreation-related impacts that could occur within the secondary influence zone (a 2-hour driving distance from Vernal and Rangely) are based on the population projections in table 4-38.

This table shows only the projected population impacts for Rio Blanco and Uintah Counties. Other counties included in the secondary influence zone are portions of Daggett, Duchesne, and Carbon in Utah; Moffat, Garfield, and Mesa in Colorado; and Sweetwater in Wyoming. The percentages shown in the table are for Rio Blanco and Uintah Counties only and present a worst-case situation. The percent increase in population (of the entire secondary influence zone) due to the project as a whole would be significantly less than shown in the table.

All impacts in the secondary influence zone are non-mitigatable and therefore are unavoidable.

THREATENED AND ENDANGERED PLANTS

In general, adverse impacts to threatened or endangered plant species and vegetation would increase. The amount of impact is not quantifiable, but would be due to overall increased ORV use, recreational developments, plant collecting, and vandalism. There is one officially listed endangered plant

TABLE 4-35

Cumulative Employment Projections
1981-1995

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Moon Lake PP	227	457	919	1,221	936	833	200	200	200	200	200	200	200	200	200
Deserado Mine	169	336	190	203	677	613	594	594	594	594	594	594	594	594	594
Superior	50	268	458	847	1,329	1,310	920	920	920	920	920	920	920	920	920
Ca	--	550	1,300	2,300	2,500	2,500	2,500	2,500	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Cb	--	2,098	1,774	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600	1,600
Paraho	--	500	1,000	1,300	1,000	1,320	1,120	520	520	520	520	520	520	520	520
Colowyo	--	220	220	220	220	220	220	220	220	220	220	220	220	220	220
Anschutz	--	180	180	180	180	180	180	180	180	180	180	180	180	180	180
Mid-Continent	--	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Geokinetics	40	50	50	100	250	300	350	400	450	500	500	500	500	500	500
TOSCO	--	30	30	5	505	1,205	2,210	3,130	4,025	3,260	2,260	1,760	1,260	1,260	1,260
White River Shale	200	600	1,420	525	780	830	2,330	4,850	4,050	4,600	4,700	3,900	2,900	3,100	3,100
White River Dam	--	--	50	310	210	10	10	10	10	10	10	10	10	10	10
Total	668	4,789	7,631	8,851	9,027	10,961	10,674	15,164	14,809	14,644	13,744	12,444	10,944	11,144	10,644

Sources: Uintah Basin Association of Governments, 1979; USDI, BLM, 1980; and Burns and McDonnell, 1979a.
Uintah Basin Energy Planning and Development Council.

TABLE 4-36

Cumulative Population Increase Projections

	1985	1990	1995
NE Utah	5,058	12,936	12,341
NW Colorado	15,362	12,648	11,681
Total	20,420	25,584	24,022

Source: Burns and McDonnell, 1979a.

TABLE 4-37

Total Projected New Housing Requirements 1980-1995

Years	NW Colorado	NE Utah
1980-1985	3,370	4,501
1985-1990	99	3,055
1990-1995	102	2,032

Source: Burns and McDonnell, 1979a.

TABLE 4-38

Combined Population Projections For Uintah and Rio Blanco Counties

	1985 (Project Peak)	1987
Population Without the Project		
Population Projection[a]	47,684	55,502
Increase Over Projected 1981 Population	17,909	25,727
Percent Increase	60%	86%
Population With the Project		
Population Projection[a]	52,718	58,645
Increase Over Projected 1981 Population[b]	22,943	28,870
Percent Increase	77%	97%
Population Increase Due to the Project		
Increase	5,034	3,143
Percent Increase	11%	6%

Source: Burns and McDonnell, 1979a.

[a] Burns and McDonnell, 1979a and Colorado West Area Council of Governments, 1979.

[b] 1981 population projection is 29,775.

species within the regional area, the Uinta Basin hookless cactus, Sclerocactus glaucus (Federal Register October 11, 1979). Most of its known habitat is contained within the secondary influence zone. It is estimated by the USFWS that there are about 15,000 individual plants of this species. The regional impacts of increased collecting and vandalism could have more effect on this cactus than on the other threatened or endangered plants because "cactus rustling" is a problem throughout the West.

The population increases in the zone of influence due to the proposed project are not expected to adversely affect or modify the essential habitat of any plant species. However, the combined effect of this and other projects could threaten the continued existence of Sclerocactus glaucus. The USFWS biological opinion is that the Moon Lake project by itself would not likely jeopardize the continued existence of this cactus.

ANIMAL LIFE

TERRESTRIAL

The project-related population increase in the secondary influence zone would increase pressures on all species of wildlife. In almost all of the situations analyzed below, the secondary impacts from increased human activities brought about by the increase in human population, would probably have greater detrimental impacts on the species than construction and operation of the power plant and raw material supply systems. These impacts are largely unquantifiable with existing data. The increased need for housing and recreational dwellings often requires land which is presently serving as habitat for wildlife species. Increases in people also brings a corresponding increase in vehicle travel, which results in more vehicle-wildlife collisions.

An influx of people into the area would create a greater demand for wildlife-related recreation in the forms of game and non-game hunting, off-season shooting, and wildlife observation. The influx would also result in increased ORV use in wildlife habitats.

These activities can also increase the amount of illegal losses of game animals. In 1979, about 3,500 citations were issued by UDWR for wildlife-related offenses. Historically, the actual number of animals lost to violators is unknown (Davis, 1980), but could be significant, as studies in New Mexico have indicated that for every deer legally harvested, there is one poached (Pursley, 1977).

The hunting pressure on big game species in Colorado and Utah would also increase. Harvest of antlerless elk and deer, moose, and antelope is controlled. Hunting demand currently exceeds the available big game and the numbers of hunting permits for antlerless elk, deer, moose, and antelope (UDWR, 1978).

Reductions in the populations of big game animals from controlled harvest would be minimal, but impacts because of increased illegal killing and harassment from ORVs and sightseers would be detrimental and would cause an unpredictable or unquantifiable loss of habitat and/or animals.

Upland game and waterfowl would also be harvested; however, the actual increase in the harvest is unquantifiable.

The endangered bald eagle and peregrine falcon would be more susceptible to shooting and loss by displacement with an increase in hunting and other outdoor recreational activities in the region. Such incidental losses are not expected to adversely affect the population of bald eagles. The impact on the population of eagles would not likely jeopardize their continued existence (see Appendix 23). Only five active peregrine falcon eyries are known to exist in Utah; thus, unnecessary loss of even one peregrine could constitute jeopardy to the Utah population (Gill, 1980).

Cumulative impacts from population increases from all energy-related projects would compound the problems mentioned above. Hunting of game animals would likely be strictly controlled by issuance of permits to restrict the number of hunters. This would place greater demands on the managing agencies.

Wild Horses

The increased number of people would cause increased pressure on the Bonanza wild horse herd. This would happen because people are naturally curious and would seek them out to observe, photograph, or chase. All of these activities would harass the herd and cause a restriction in the amount of range the horses would use. With a restriction of available range, there would be a corresponding restriction in carrying capacity which could result in a reduction in the herd size (Evans, 1980).

AQUATIC

Peak population related to the Moon Lake project in 1987 could add about 1,700 fishermen to the area. Fish hatcheries in Utah and Colorado are presently producing at their capacities, approximately 12 and 22 million respectively, and without supplemental planting of rainbow, lake, and cutthroat trout, numbers and sizes of fish populations would decline slightly. Degradation of habitat through increased human disturbance (cutting firewood, polluting streams, and destroying vegetation) could result in more loss of fish than increased fishing pressure.

Some inadvertent losses of endangered fishes could occur as a result of increased fishing pressure; however, it is not expected to adversely affect the continued existence of these species nor adversely modify their essential habitats.

CULTURAL RESOURCES

Vandalism could be expected to increase in direct proportion to the population increase. Any damage to significant cultural resources could result in a loss of scientific and educational information.

RECREATION

Developed regional and municipal recreation sites could be expected to meet the recreation needs of the population directly associated with the Moon Lake project, assuming little or no population growth related to other factors. Dispersed recreation opportunities would also remain satisfactory.

Due to cumulative population increases, overcrowding of developed recreational facilities would occur. Popular areas obviously would receive proportionally greater use than others; campgrounds and marinas at Flaming Gorge, Steinaker, Starvation, and Strawberry Reservoirs and Dinosaur National Monument would experience significant visitation increases from the Vernal area. Colorado state parks would experience a similar increase in use from the Rangely area.

Fifteen developed recreation sites currently at or above 40 percent of capacity would experience further degradation of facilities due to overuse (see table 3-25). Thirty-five sites currently used at 20 to 40 percent of capacity would experience some degradation as well as lower user satisfaction. Sanitation problems would also increase.

Parks and open space in both Rangely and Vernal would be adequate to handle the cumulative population increase.

In Rangely, the developed recreation facilities of the Western Rio Blanco Metropolitan Parks and Recreation District existing or planned for construction within 1981-82 are adequate to meet expected population increases for the next 5 years. Then facilities such as tennis and handball courts would require expansion to maintain user satisfaction.

In Vernal, the facilities of the Uintah Recreation Association (composed of the City of Vernal, Uintah School District, and the LDS Church) are currently being used at capacity. A new privately-owned facility containing roller-skating rink, weight/exercise room, and sauna was recently opened. This should help ease the demand on public facilities. Even so, population growth will require expansion of association facilities. There are no plans at present for construction of such facilities. Thus, the immediate outlook is for crowding of facilities and resultant declining user satisfaction.

The cumulative impact of the projected population increase would also adversely affect all dispersed recreational activities throughout the influence zone. Reduced hunting success could lead to reduced satisfaction. Local ORV use would increase. The High Uintas Primitive Area (now proposed as wilderness by USFS) and Flat Tops Wilderness Area would experience additional hikers and horseback riders. Congestion would be particularly heavy at the popular trail heads. Recreational boating through Desolation, Split Mountain, Lodore, and Whirlpool Canyons would remain a satisfactory experience due to the adoption of passenger day annual use limits in the BLM and NPS River Management Plans. However, increased difficulty in obtaining the required permits would result.

TRANSMISSION SYSTEM

ROUTING ALTERNATIVES

INTRODUCTION

The following impact assessment presents a brief overview of the type of impacts that would be expected from construction of the transmission system. Table 3-27 shows the extent of the resources that would be affected by each routing alternative.

(Appendix 12 of this Final EIS presents a numerical evaluation procedure used to analyze and compare electrical transmisson corridor alternatives.)

SOILS

Erosion hazards for the soils encountered by the transmission corridors have been identified in table 3-27. More erosion impact would occur on disturbed soils rated severe than on those rated moderate and/or slight. Overall, soil loss along transmission lines is expected to be slight because of the localized nature of the disturbance. In mountainous terrain on the Uinta and Manti-LaSal National Forest, soil erosion and loss would be accelerated by construction of access roads and by the use of these access roads and the powerline route by ORV recreation users. Extremely unstable soil exists along

4.5 miles in segment 37. Slopes are highly dissected and steep slopes average 45 percent with several over 100 percent. The Dairy Fork route (segment 25) has approximately 9 miles of extremely unstable soils with highly dissected land forms along it. Extremely unstable soils exist along 12 miles of segment 11. Any construction in these areas would aggravate the already unstable soils. In addition, subsidence due to mining activities along segment 37 could undermine transmission tower sites. A technical report on slump and landslide prone areas in mountainous terrain (segment 25) has been prepared by the Manti-LaSal National Forest (McGarry and Reed, 1981). The report states that construction activities in this steep mountainous terrain would create extensive surface disturbances both along the corridor and across it. In addition, it would be possible that instability and slope failures would be induced by construction along the steep mountainous terrain route of segment 25.

PALEONTOLOGY

The paleontological importance of geological formations encountered by each corridor alternative has been rated and is listed in table 3-27. Scientific and educational values could be lost. The impacts to paleontology would be proportional to the amounts of high, moderate, low, or negligible paleontologically significant formations disturbed.

VEGETATION

It is estimated that about 4.2 acres/mile would be disturbed by construction. The disturbed areas would be considerably larger than areas which would remain occupied for the lifetime of the project. Reclamation of disturbed areas from tower construction and most access road construction would be carried out with revegetation or other mitigating procedures.

The removal of this much vegetation on routes traversing cultivated lands, cold desert shrub, pinyon-juniper, most riparian vegetation, wet meadow/marsh, and most mountain brush would have very little impact on the stability or productivity of these vegetation types. However, where native vegetation is cleared, there is a likelihood of introducing or causing an increase in weeds. Cold desert shrub and some pinyon-juniper areas are most vulnerable to invasion by introduced annual weedy species. Mustards, Russian thistle, locoweed, and halogeton are the most common invaders of disturbed desert or semi-desert areas. Noxious weeds, halogeton, and some locoweeds (*Astragalus* spp.), species are poisonous to livestock and require special control measures if they are to be kept from increasing in areas where native vegetation has been cleared. Other weeds are not poisonous but compete with native vegetation and, except for Russian thistle, are nearly worthless as forage at certain times of the year. Some alternative transmission line corridors would pass through proposed and/or listed threatened or endangered plant species habitat (see Appendix 15 of the Draft EIS).

ANIMAL LIFE

Terrestrial

The impacts to terrestrial wildlife species from transmission towers and lines are variable depending primarily upon placement of towers and season of construction. Most of the negative impacts are short term because most wildlife species are not unduly affected by the existence of towers and lines. The exceptions are primarily birds which, in darkness or bad weather, can collide with powerlines and be killed or seriously injured. This is especially a problem with migrating species in concentration areas such as riparian zones, roost areas, and flyways. Because towers provide perches and resting areas, most raptor species are expected to benefit from the towers. However, if construction were done within 0.25 mile of golden eagle nests during the critical part of the nesting season (February 15 to June 15) abandonment of nests could occur. Impacts to bald eagles (endangered) and whooping cranes (endangered) would be loss of birds due to transmission line collision. The amount is unknown, but would be concentrated in major flyway and concentration areas (see figures 3-11 through 3-23 in the Draft EIS).

Moose, elk, deer, and antelope would be put under stress and some losses could result if construction were to take place during winter months (December through April) in their critical ranges. Some losses of antelope fawns could occur if construction were to take place during fawning season (May-June) in critical fawning areas. The introduction of new access roads into big game critical areas would increase harrassment, hunter harvest, and illegal kills.

If construction were to take place during the sage grouse strutting (mating) season adjacent to or in the proximity of leks (strutting grounds), sage grouse production for that year could be eliminated. If towers are located within (0.25 mile) of leks, it could curtail strutting activities because of the change in predation from raptors (Welsh, 1980). In heavy concentration areas, an unknown number of grouse may be lost from collision with powerlines. This loss of grouse would be highly variable depending upon the elevation of the lines and the elevation the grouse are accustomed to flying in the particular area where lines would be located. The location of the towers in sage grouse concentration areas would also give certain raptor species which feed on sage grouse (i.e., golden eagles and American rough-legged hawks) an advantage by providing new raptor perch sites, thus making sage grouse more susceptible to raptor predation. Construction of transmission lines through sharp-tailed grouse and turkey concentration areas would have impacts similar to those on sage grouse. In segment 31, removal of trees along the Weber River would result in a loss of nesting sites and roost trees in a raptor concentration area. This is an area of special management concern.

The effect of transmission system construction on wild horses would be temporary. These animals would be forced out of habitual grazing or trailing areas for a few days or weeks. However, because horses are adaptable to temporary disturbances, it is not expected that the construction or operation of the transmission system would result in the loss of any wild horses. Only a minute portion of the total forage available to wild horses along the proposed route would be altered. In the long term, horses would benefit from the increased variety of vegetation from the reseeding of disturbed areas.

Aquatic

The important fishery streams along the alternative transmission lines are listed in table 3-27. These streams have been given fishery values that range from limited to critical fish habitat. Introduced access would lead to additional fishing pressure on certain portions of high mountain trout streams that presently have little or no access to them. More access would likely increase poaching, especially in streams trout use for spawning (e.g., Trout Creek, Strawberry River, etc.). This would reduce fish populations and cause a deterioration of the wild trout fishery. New access roads would increase the impacts associated with man's presence (e.g., litter, fire, etc.).

Caving and sloughing of streambanks and removal of riparian vegetation during construction would result in a short-term increase in turbidity and suspended solids and a short-term reduction in the quality of the fishery.

Adverse impacts on endangered and rare species in the Green and White Rivers are not expected because these fish are adapted to high fluctuations in turbidity and suspended sediment. Construction and operation of these powerlines would not likely jeopardize the continued existence of these species or adversely modify their essential habitats.

CULTURAL RESOURCES

Construction and maintenance activities associated with the transmission lines could inadvertently damage or destroy cultural resources. Increased access to the area would likely result in increased vandalism. Nine sites, two of which appear to be eligible for nomination to the National Register, were recorded along the transmission system during sample-oriented field inventories. An additional 387 sites on or near the corridors were indicated through literature searches. Only two sites are currently listed in the National Register of Historic Places and both are along segment 28 in the Canyon Pintado Historic District in Rio Blanco County, Colorado. The introduction of visual elements out of character with the Historic District would detract from the historic setting of the district. All sites on the transmission system and their National Register status are listed in table 3-27.

Wherever possible and feasible, cultural resources would be avoided by construction and related activities. If this were not possible, the appropriate regulatory agency would consult with the appropriate State Historic Preservation Officer to determine the most satisfactory means of mitigating damage. Even with present salvage techniques, some scientific and educational information could be lost.

VISUAL RESOURCES AND RECREATION

Visual Resources

The transmission lines would cause visually adverse man-made contrast in or near visually sensitive areas such as major travel routes, primary highway crossings, high quality scenic areas, remote backcountry areas, communities, and recreation areas (see figure 4-5). The degree of additional contrast would depend on the size of the line constructed, presence of existing lines, existing scenic quality, and existing contrast.

Scenic quality would be most impaired by placing new lines of any size in undeveloped areas or by upgrading 138-kV lines to 345-kV lines.

Areas with low and medium sensitivity would be least impaired. Areas with high sensitivity would be adversely affected if the project lines were the only transmission lines placed in the area. Effects would be further increased if this new construction resulted in the area being designated as a transmission corridor for future projects.

New lines would have little effect on areas with high existing contrast. Areas with low or medium contrast could be raised one category higher (i.e., low contrast to medium contrast).

With construction of the transmission system, the USFS would be unable to maintain visual quality objectives for segments 11, 22, 24, 30, 31, 35, and 37 if lines were built there.

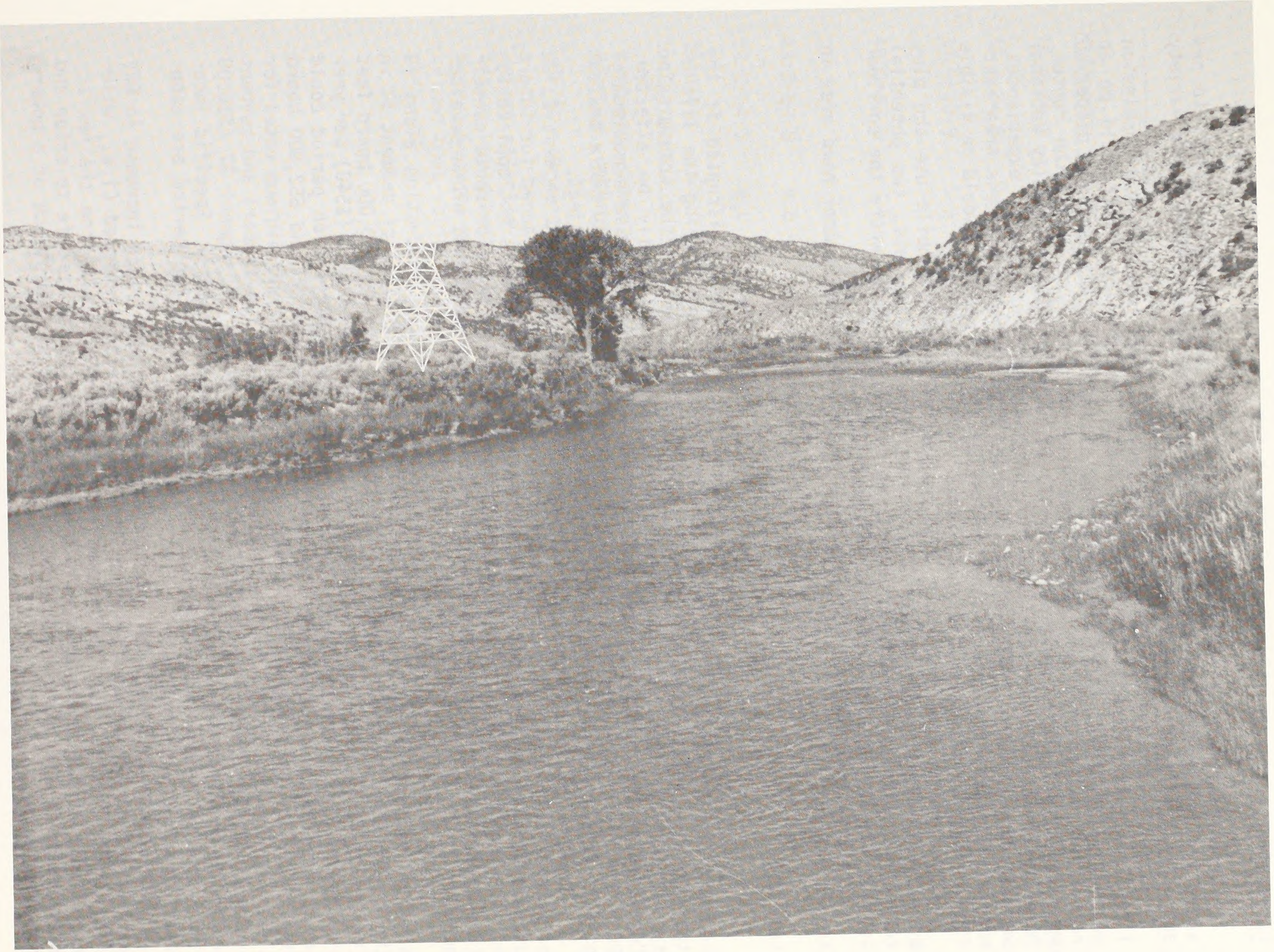

FIGURE 4-5

VISUAL SIMULATION OF TRANSMISSION TOWER

Recreation

Transmission line construction access roads would create access to new areas for hunters, fishermen, and ORV users, thereby increasing the variety and quality of their recreational opportunity.

Specific recreation sites including scenic roads impacted by transmission lines are summarized in table 3-27. These transmission lines would be an aesthetic intrusion to visitors at the recreation sites and the dispersed recreation backcountry and the proposed wilderness area along the routes. Approximately 12 miles (mileposts 35-47) of segment 35 on the Ashley National Forest crosses an area utilized for backcountry recreational experiences. Segment 35 is within 1 mile of the proposed High Uintas Wilderness Area eastern boundary and, because of open vistas at this elevation, would be visible from within the proposed wilderness area.

The recreational conflicts with segment 37 are snowmobile use and play areas, organized summer campsites, summer home developments, two potential recreation sites, and a scenic area along the Skyline Drive where the corridor crosses the Skyline Drive road at milepost 22.6.

The only recreational conflict with segment 19 is one summer home area in Argyle Canyon.

LAND USE

Farming and grazing activities would be temporarily disrupted if the construction period were to occur during season of use. During the life of the project, agriculture and grazing could continue within the transmission system right-of-way and, therefore, would not substantially be affected. Construction and occupancy would not cause serious loss because a maximum of 20.6 acres per mile would be disturbed by construction activity and a maximum of 0.11 acre per mile would be occupied for the life of the project.

Segment 28, at mileposts 1 through 5 and milepost 7; and segment 2, at mileposts 13 through 15, could occupy public lands that are planned for future urban expansion under a pending Recreation and Public Purposes Act application by the Town of Rangely. The identification of the transmission route centerline would determine any specific conflicts with the projected urban development.

There could be a loss of prime commercial timber production along 29 miles of segment 35 in the Ashley National Forest and 6 miles of segment 37 in the Manti-LaSal National Forest. This could be as much as 150,000 board feet (valued at $300) per year on segment 35 and 30,000 board feet ($540) per year on segment 37. Timber volumes affected during the construction period could be as much as 2,537,000 board feet ($5,074) on segment 35 and 652,000 board feet ($11,585) on segment 37. Values are based on current minimum rates for timber on segment 35 ($2.00 per thousand board foot live timber) and current average selling price for conifer and aspen sawtimber on segment 37 ($30.00 and $5.00 per thousand board foot live timber, respectively). Specific location, species, and volume affected during the construction period are tabulated in tables 4-39 and 4-40.

New access into USFS ORV closure areas would lead to an increase in ORV use and a loss of values for which the area is being protected (i.e., wildlife, soils, etc.). Law enforcement problems could result from the new access. Some of the areas presently closed to ORV use are unsafe to enter and enforcement of the closure would be difficult with the existence of a powerline corridor.

TABLE 4-39

Commercial Timber Areas--Segment 35[a]
Affected Standing Volume During Construction Period

Mileposts	Total Miles	Tree Species	MBF/Ac.[b]	Volume Affected (MBF)[c]	Remarks
24.5-30.0	5.5	Lodgepole Pine	8	533	The Bd ft./ac. ranges from 0-15 thousand, depending on whether segment portion has been logged or not (clear cut areas exist along the 5.5 miles).
30.5-34.5	4.0	Lodgepole Pine	12	582	
34.5-40.0	5.5	Lodgepole Pine/- Engelmann Spruce	8	533	
40.0-43.5	3.5	Lodgepole Pine (poles and scattered saw-timber)	4 (3,000 poles/ac.)	170	
43.5-52.5	9.0	Lodgepole Pine	5	545	
52.5-54.5	2.0	Douglas fir	8	174	
Totals	29.5			2,537	

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[a] Important commercial timber areas on Ashley National Forest, U.S. Forest Service, occur on segment 35.

[b] MBF/Ac. = Thousand board feet per acre.

[c] Volume affected is based on assumption that total transmission line right-of-way would not be cleared. Actual cleared volume would be subject to Forest Service special use stipulation. Volume shown is 50 percent of that volume that would be involved with a total cleared right-of-way.

TABLE 4-40

Commercial Timber Areas--Segment 37[a]
Affected Standing Volume During Construction Period

Mileposts	Total Miles	Tree Species	MBF/Ac.[b]	Volume Affected (MBF)[c]	Remarks
16.5-17.0	1.5	Engelmann, Spruce, and White Fir.	25	115	[d]Losses from wind throw along power transmission line could equal 300 MBF per year for the 5.7 miles for up to 2 years.
17.0-17.6	0.6	Aspen	5	35	
18.0-18.4	0.4	Engelmann Spruce	25	115	
19.9-19.2	0.3	Spruce	25	103	
21.5-21.9	0.4	Aspen	9	41	
22.3-23.2	0.9	Aspen	9	104	
23.9-24.2	0.3	Aspen	12	44	
24.2-25.1	0.9	Aspen	5	58	
25.1-25.5	0.4	Aspen	8	37	
Totals	5.7			652	

[a] Commercial timber areas on Manti-LaSal National Forest, U.S. Forest Service, occur on segment 37.

[b] MBF/Ac. = Thousand board feet per acre.

[c] Volume affected is based on assumption that total transmission line right-of-way would not be cleared. Actual cleared volume would be subject to Forest Service special use stipulation. Volume shown is 50 percent of that volume that would be involved with a total cleared right-of-way.

[d] Wind throw losses along newly constructed power transmission lines based on local USFS knowledge and experience.

Segments 3, 9, and 30 could have detrimental safety effects on air navigation and aeronautical operations. Segments 7, 16, and 35 could have adverse electromagnetic effects on navigational aids. The spatial extent and magnitude of potential impacts would vary with localized atmospheric conditions.

Depending upon the centerline location of the transmission line, the segments listed in table 4-41 could detract from the scenic and recreational values of Land and Water Conservation Fund properties.

Segments 13 and 33 crossing the Green River, and segments 2, 4, and 28 crossing the White River, could conflict with the status of these rivers which are now being considered in the Nationwide Rivers Inventory.

The construction of a powerline in segment 37 would be difficult because the corridor is presently utilized by approved coal operation facilities for at least 1 mile. These facilities consist of conveyor systems, power transmission lines, buildings, coal portal areas, and attendant facilities including transportation systems. All linear facilities associated with coal operations are designed in an east-west direction. The coal operation facilities have been approved by USFWS for development. The long-wall extraction method has been approved and 50 to 90 percent of the surface is expected to subside. Powerline tower sites would be difficult to locate because of the projected subsidence over the entire Eccles Canyon area. Construction of the coal operation facilities would begin in 1981; some earth work is already underway.

LAND USE PLANS AND CONTROLS

The Draft Management Plan of the Uinta National Forest has designated 12 miles along segment 11 as unsuitable for further road construction. The Uinta National Forest Land Management Plan also includes standards and guidelines for location of utility corridors on the Forest. The location of segment 11 would be contrary to the direction provided by these standards and guidelines. The draft management plan feasibility studies for the Manti-LaSal National Forest have designated the Skyline Drive at milepost 22.6 on segment 37 as a scenic road. Construction of transmission lines in this area would conflict with this designation.

The Vernal Planning Unit Land Use Plan on the Ashley National Forest has specific management objectives for visual quality, commercial timber, water quality, and unroaded areas. Considerable mitigating measures would be needed to eliminate or minimize conflicts on segment 35 crossing the Ashley National Forest.

BLM land use plan conflicts are tabulated in table 4-42.

A decision by the Federal government to approve transmission line alternatives would be a decision to amend the land use plans for National Forest and BLM-administered lands which would be involved.

SYSTEM ALTERNATIVES

UTAH POWER AND LIGHT (UP&L) INTERTIE

The following effects would result from Deseret providing additional funding to UP&L or helping to construct double circuit towers for the Moon Lake unit 1 and Hunter 3 line, either from Tucker or from Tank Hollow, to the UP&L Spanish Fork substation.

Right-of-way requirements would be only that needed for the Hunter 3 line. These requirements would involve acres occupied by towers and permanent

TABLE 4-41

Land and Water Conservation Fund Park and Recreation Areas Affected by Transmission Line Corridors

Designation of L&WCF Lands	Segments	Acres Potentially Occupied
295 H	30	0.75
66, 158	30	3.5
170, 233	36	0.75
290, 222 et al.	30	0.75
Surplus 421 K	30	0.75
295 L	36	0.75
204, 237	36	0.75
32	36	0.75
32, 125	36	1.5
284	30	0.75

TABLE 4-42

BLM Land Use Plan Conflicts With Transmission Corridors

Resource	Recommendation	Conflicts
Vernal District Utah		
Wildlife	Restrict activities on antelope fawning areas, May 1-June 15.	Segments 1, 3, 4, 5, 6, 14, and 18 are within antelope fawning areas.
Land Uses	Restrict right-of-way to designated corridors.	Segments 1, 2, 3, 4, 5, 12, 13, 19, 27, 29, and 33 are outside of designated corridors.
Recreation	Preserve open spaces and restrict surface disturbance and manmade improvements.	Segments 13, 33, and 35 would alter open spaces with manmade structures.
Craig District Colorado		
Land Uses	Restrict right-of-way to designated corridors.	Segments 2, 3, 4, and 28 are outside designated corridors.
	Proposed R&PP classification on C-22915 and Town of Rangely Public Sale Application C-26914.	Segments 2 and 28 would conflict with proposed urban development.
Rock Springs Wyoming		
Wildlife	Restrict activities on sage grouse nesting/strutting grounds (leks), March 1 to June 15.	Segment 35 is within strutting grounds.
	Restrict activities on active golden eagle nesting sites, March 1 to July 1.	Segment 35 is within active golden eagle nesting sites.
	Restrict activities on critical deer winter range, December 15 to April 15.	Segment 35 is within critical deer winter range.
	Restrict activities on critical moose winter range, December 15 to April 15.	Segment 35 is within critical moose winter range.
Cultural Resources	No surface disturbing activities within 0.25 mile of historic emigrant trail.	Segment 35 crosses historic emigrant trail.

access roads and acres disturbed during construction. The right-of-way requirements would be 58 acres for the Tucker to Spanish Fork substation overlap and 39 acres for the Tank Hollow to Spanish Fork substation overlap.

Refer to table 3-27, and figures 3-11 through 3-23 in the Draft EIS, for resource descriptions and quantities along the above-mentioned overlaps. A UP&L intertie would reduce the effects on the impacted resources for these overlaps. On either of the overlaps there would be an 87-percent reduction of effects on soils, vegetation, and water. There would be a 50-percent reduction of visual contrast but, due to existing scenic quality and sensitivity levels the visual resource management class would remain unchanged. These reductions are based upon differences in right-of-way acres with or without an intertie. There would be an unquantifiable reduction of effects on animal life and cultural resources.

Construction costs for the Tucker to Spanish Fork substation intertie would be about 17-percent less than for independent construction. Construction costs for the Tank Hollow to Spanish Fork substation intertie would be about 13-percent less than for independent construction.

TOWER SHARING

There is potential for double circuit tower installation for carrying Moon Lake project lines and existing lines along 174.2 miles with the Bonanza plant site and 140.7 miles with the Rangely plant site. (Refer to table 2-9 for the description of transmission system segments with potential for tower sharing.)

There could be a reduction in right-of-way requirements for tower sharing with the existing lines. This reduction would have a corresponding reduction of effects on associated resource values.

Reduction of number of lines would reduce long-term effects on all the resources shown for segments listed in table 2-12. The amount of reduction would depend on how many existing lines and towers could be eliminated through tower sharing as well as the routing alternative.

DOUBLE CIRCUITING

Spanish Fork Substation

This alternative would require only a 170-foot right-of-way instead of the 300-foot requirement for two separate lines. Most of the impacts would occur during the construction phase of unit 1. The unit 2 circuiting would take place later with a minimum of impacts to the various resources. The most significant impact reductions would be on impacts to soil, watershed disturbance, and the visual degradation. A double circuit 345-kV system requires about 7-percent less investment than construction of two independant 345-kV systems. However, initial investment costs of a double circuit system would be 85-percent per mile more than installation of a single circuit system and there is no assurance that the unit 2 line would be placed on these towers. Adding unit 2 circuits would require the reopening of temporary access roads or stringing circuits by use of helicopter and the resulting impacts.

There would not be additional impacts to the environment on the segment involving the 138-kV system to the Upalco substation. With or without double circuiting of the 345-kV lines, a new 138-kV line would be installed on new towers. See Appendix 5, tables B-H of the Draft EIS for the acreage and miles of corridor involved in this alternative.

Mona Substation

Discussion of impacts under the above double circuiting to Spanish Fork substation also applies here. The UP&L wheeling alternative could be used to deliver power to the Wasatch Front from the Mona substation or Deseret could construct a 345-kV single circuit line up the Wasatch Front to the Ben Lomond substation.

The wheeling arrangement would have no known changes on the existing physical or biological environment of the Moon Lake transmission system. Over the 35-year life of the project, wheeling costs would be about 52-percent less than construction of the Wasatch Front segment 36.

Refer to table 3-27, and figure 3-22, for resource descriptions and quantities along the Wasatch Front route.

UP&L-DESERET COOPERATIVE WHEELING

Construction of a double circuit 500-kV line through Spanish Fork Canyon could handle the projected load for the planned independent 345-kV line for the Hunter Plant, two 345-kV lines for the Moon Lake power plant and two future 500-kV transmission lines for UP&L operation.

Construction of the double circuit 500-kV line would reduce the right-of-way requirements that would be needed for the five lines identified above. For the Moon Lake project, this reduction would be similar to that discussed under the above UP&L Intertie discussion. The actual right-of-way requirements would be a small increase in that needed for the planned Hunter 345-kV line. As with the UP&L intertie, there would be a similar long-term reduction of effects on soils, vegetation, water, and visual contrast. The visual resource management class would remain unchanged. The amount of reduction of effects on animal life and cultural resources would also be unquantifiable.

Construction costs per mile for the double circuit 500-kV transmission system would be approximately 10-percent less than the three independent 345-kV lines.

SPECIFIC MITIGATING MEASURES UNIQUE TO THIS ACTION AND REQUIRED OF THE APPLICANT BY FEDERAL AGENCIES

Authority for requiring the following mitigating actions is granted under the same authority as described in Chapter 2 Standard Measures section in this Final EIS.

If the proposed project were approved, the applicant, under Federal law, would be required to carry out the following on federally administered lands. Deseret would, when restoring or rehabilitating areas disturbed by the construction of the transmission lines, pipelines, and associated access roads across private lands, use the same reclamation measures as required by land managers of adjacent Federal lands or reclamation measures as requested or required by the private landowner (Deseret, 1980).

All mitigating measures listed below could be modified as deemed necessary by the appropriate Federal official in cooperation with responsible state agencies. Where restrictions on the timing of construction are listed as mitigation, the state wildlife agencies may give a written waiver of this restriction depending on habitat conditions. After receiving written notice of the waiver, the appropriate Federal official may allow construction during the specified time periods.

1. All unpaved roads affected by truck coal haul alternatives will be treated or paved to reduce dust emissions.

2. New permanent sources of water will be provided by Deseret in the vicinity of the Bonanza plant site to offset loss of antelope habitat. The number, location, and method of water supply will be determined in conjunction with the UDWR and BLM. Construction of water sources will be initiated concurrently with plant site construction.

3. The Rangely plant site boundary will be adjusted so as to allow a 0.25 mile buffer zone around Cactus Reservoir. Cactus Reservoir will be excluded from the plant site right-of-way or sale area and no use of the reservoir for the project will be allowed or the reservoir would be replaced in and under the direction of the BLM and Colorado Division of Wildlife.

4. The access road to the Rangely plant site will be placed so as to avoid disturbance of a unique vegetation type located about 200 yards west of Red Wash. In order to avoid safety hazards, refuse haul truck traffic associated with the Deserado Mine will conform to standard right-hand traffic flow or the refuse haul road will be routed so as to be separate from County Road 78.

5. Should the project be approved, a wildlife mitigation plan for all project facilities will be developed jointly by the BLM, USFWS, UDWR, CDW, and Deseret as required by the Fish and Wildlife Coordination Act.

6. A minimum clearance of 6 feet will be provided at locations determined in conjuction with the BLM and applicable state wildlife agency.

7. Construction of linear facilities associated with raw material supply systems will cease in critical antelope fawning areas during the critical antelope fawning period (May 10 to June 20). Table 4-43 lists the critical antelope fawning areas.

8. During critical periods, transmission line construction will cease in essential wildlife habitats. Maintenance schedules and any required notification of maintenance will be coordinated with the respective State and Federal land and wildlife management agencies. Table 4-44 lists essential habitats and periods of concern.

9. Transmission lines will be marked by attaching colored balls in avian flyways as listed in table 4-44.

10. The Deserado Mine to Bonanza plant site overland conveyor (mileposts 25 to 29), slurry pipeline (mileposts 27 to 31), or truck haul routes (mileposts 0 to 5.5 on-highway, 33 to 37 off-highway) will be placed along the southern boundary of the identified corridors to avoid the Devils Playground.

TABLE 4-43

Critical Antelope Fawning Areas Along Raw Material Supply System Linear Facilities (May 10 to June 20)

Alternatives	Critical Area	Mileposts
Coal Transportation (miles)		
Bonanza Site		
Railroad	4	31-35
Overland Conveyor	4	25-29
Slurry Pipeline	4	27-31
Off-highway Truck	4	33-37
On-highway Truck	4	0-4
Water Source Alternative (miles)		
Green River Bonanza Pipeline	4	0-4
Utah White River Reservoir Pipeline	4	0-4

11. Surface activities associated with mining will not be allowed in Scullion Gulch between the portal area and the ventilation entry so as to protect a golden eagle nest.

12. Transmission lines should be placed within the 1-mile-wide corridor as indicated in table 4-45 to avoid important land use facilities and areas.

13. Nonreflective tower coatings and nonspecular conductors will be required when transmission lines cross or parallel highways and recreation sites, from mileposts 12 to 30 of segment 11; mileposts 20 to 24, and mileposts 59 to 65 of segment 19; and mileposts 0 to 2 and mileposts 6 to 7.5 of segment 21.

14. Surface use and modification of facilities on the Bonanza plant site will be allowed for mining purposes.

15. Cottonwood riparian vegetation destroyed by construction of the Moon Lake project will be replaced by purchase and/or management of other areas for song birds, raptors, deer, small mammals, and other wildlife species. Acreage to be replaced would be determined in conjunction with the appropriate Federal official.

16. Loss of a ferruginous hawk nest at the Rangely plant site will be mitigated by construction of 10 artificial nesting structures as designed and located by the appropriate Federal official.

17. Loss of a ferruginous hawk nest along the railroad or off-highway truch haul route will be mitigated by construction of 10 artificial nesting structures as designed and located by the appropriate Federal official.

18. Disturbance along the railroad or off-highway truck haul routes will be reseeded with a plant species mix which would be unattractive to mule deer.

19. No disturbance of prairie dog towns will be allowed until a formal survey has been made to determine if the black-footed ferret has definitely been extirpated from the area. The USFWS may accept prior studies done in the area and may provide a written waiver of this measure to the appropriate Federal official who will then allow construction to proceed. Location of black-footed ferrets would require further mitigation to be determined at that time.

EFFECTIVENESS OF SPECIFIC MITIGATING MEASURES

Road dust that would result from trucking of coal would not be completely eliminated through treatment but would likely be reduced to an acceptable level.

It is the opinion of the UDWR that a limiting factor to the Bonanza antelope herd is the availability of water. New sources of permanent water may actually improve conditions for antelope. Excluding Cactus Reservoir from the Rangely plant site would allow continued use of the reservoir by livestock and wildlife. The conveyor would no longer be a barrier to livestock and wildlife. The measures for time constraints on construction would essentially eliminate harassment of wildlife during the critical periods but waterfowl and other birds could still collide with transmission lines.

Land use conflicts would be avoided with proper placement of the system within the 1-mile-wide corridor.

TABLE 4-44

Transmission System Critical Wildlife Areas and Time Periods

Segment Number	Species	Concern	Action or Mitigation Period	Mileposts
1	Antelope	Fawning	5/10 to 6/20	0-4
2	Waterfowl and bald eagles	Collision with lines	Mark lines.	0-2
3	Antelope	Fawning	5/10 to 6/20	0-4
4	Waterfowl and bald eagles	Collision with lines	Mark lines	0-15; 8-9.5
5	Antelope	Fawning	5/10-6/20	0-4
7	Waterfowl and bald eagles	Collision with lines	Mark lines	0-2
9	Waterfowl and bald eagles	Collision with lines	Mark lines	0-2
9	Mule deer	Fawning	5/1-6/30	6.5-18
9	Sage grouse	Concentration area		11-12
10	Golden eagle	Nesting	3/1-4/31	10-15
10	Waterfowl	Collision with lines	Mark lines	12-14
10	Mule deer	Critical winter range	12/1-4/30	0-15
11	Deer and elk	Critical winter range	12/1-4/30	24-30
11	Deer and elk	Fawning/calving range	5/1-6/30	5-23
12	Antelope	Fawning	5/10-6/20	0-3.5
13	Whooping crane, waterfowl, and bald eagles	Collision with lines	Mark lines	0-9; 22-27
13	Waterfowl	Collision with lines	Place transmission lines along southern boundary of the 1-mile corridor	22-27

TABLE 4-44 (continued)

Segment Number	Species	Concern	Action or Mitigation Period	Mileposts
15	Sage grouse	Concentration areas	3/1-4/30	0-9.5
17	Waterfowl	Collision with lines	Mark lines	5.3-6.3
19	Sage grouse	Concentration area	3/1-4/30	29-39
19	Deer and elk	Critical winter range	12/1-4/30	25-65
20	Deer and elk	Critical winter range	12/1-4/30	0-8.8
21	Deer and elk	Critical winter range	12/1-4/30	0-7.5
22	Deer	Critical winter range	12/1-4/30	10-23
23	Deer and elk	Critical winter range	12/1-4/30	0-15.5
24	Sage grouse	Concentration area		1.7-3.7
24	Deer	Critical winter range	12/1-4/30	0-16
24	Elk	Critical winter range	12/1-4/30	0-3.5; 5.7-16
25	Deer and elk	Critical winter range	12/1-4/30	0-17; 18-22
25	Deer and elk	Fawning/calving range	5/1-6/30	22-23
26	Deer	Critical winter range	12/1-4/30	5-25
26	Sage grouse	Concentration area	Winter	5-15
27	Waterfowl and bald eagles	Flyway	Mark lines	8-8.9
28	Waterfowl and bald eagles	Flyway	Mark lines	0-7; 10-11; 13-14
29	Antelope	Fawning	5/10-6/20	0-4

TABLE 4-44 (continued)

Segment Number	Species	Concern	Action or Mitigation Period	Mileposts
30	Waterfowl	Collision with lines	Mark lines	42.4-43.1; 52.9-54.9; 58.9-68.9
30	Moose	Critical winter range	12/1-4/30	0-4.9; 53-92.6
30	Deer and elk	Critical winter range	12/1-4/30	0-23; 52-52.9
30	Sage grouse	Concentration area	Winter	0-23; 44-66
31	Deer and elk	Critical winter range	12/1-4/30	0-8
33	Waterfowl and bald eagles	Flyway	Mark lines	4-5
35	Waterfowl	Flyway	Mark lines	18.7-69.2; 84.2-93.2; 102.5-103.5; 133.2-135.2
35	Moose	Critical winter range	12/1-4/30	24.7-69.2; 89.2-94.2; 134.2-149.2
35	Deer and elk	Critical winter range	12/1-4/30	12-25; 57-65; 119-137; 147-160.7
35	Sage grouse	Concentration area	3/1-4/30	70-85; 95-105; 146-160.7
35	Sharptailed grouse	Concentration area	3/1-4/30	146-160.7
36	Deer and elk	Critical winter range	12/1-4/30	0-7
36	Waterfowl	Flyway	Mark lines	67-82
37	Deer and elk	Critical calving-fawing area	5/1-6/30	16.5-22.0
37	Deer and elk	Critical winter range	12/1-4/30	25-27.8

TABLE 4-44 (concluded)

Segment Number	Species	Concern	Action or Mitigation Period	Mileposts
37	Moose	Critical winter range	12/1-4/30	6-17
37	Waterfowl	Roosting and nesting	Mark lines	21.5-22.5

TABLE 4-45

Land Use Facilities and Areas Along the Transmission Corridors

Segment Number	Mileposts	Concerns	Mitigation
2	13-15	Town of Rangely Recreation and Public Purpose Application.	Locate transmission lines to the south edge of the corridor.
2	8	White River Crossing Nationwide River Inventory	Consultation with Heritage Conservation Recreation Service.
3	5	Bonanza Air Strip	Locate transmission lines away from airports and navigational aids. Submit Notice of Proposed Construction (FAA Form 7460-1) to Federal Aviation Administration.
4	1-4	White River Crossing Nationwide Rivers Inventory	Consultation with Heritage Conservation Recreation Service.
7	20-25	Very high frequency (VOR) station omni directional range.	Locate transmission lines away from air navigational aids. Submit Notice of Proposed Construction (FAA Form 7460-1) to Federal Aviation Administration.
9	10	Duchesne Municipal Airport.	Locate transmission lines away from airports and navigational aids. Submit Notice of Proposed Construction (FAA Form 7460-1) to Federal Aviation Administration.
9	15-20	Starvation Reservoir right-of-way.	Locate transmission lines to the north and west edge of the corridor.
11	10-15	Aspen Grove Campground	Locate transmission lines to the north or south edge of the corridor.
11	8-18	Strawberry Recreation Complex.	Locate transmission line to the east side of corridor, using ridges as screening.

TABLE 4-45 (continued)

Segment Number	Mileposts	Concerns	Mitigation
13	22	Green River Crossing Nationwide Rivers Inventory.	Consultation with Heritage Conservation and Recreation Service.
13	22-27	Pariette Waterfowl Management Area	Locate transmission lines along southern boundary of the 1-mile wide corridor.
16	10-15	Very high frequency (VOR) station omni-directional range.	Locate transmission lines away from air navigational aids. Submit Notice of Proposed Construction (FAA Form 7460-1) to Federal Aviation Administration.
19	6-13	Presence of highly erodable soils on steep ridges and toe of slopes.	Locate proposed transmission line in canyon bottom along existing powerline ROW, if possible.
22	13	Strawberry Highland Canal	Locate transmission lines to the south edge of the corridor.
28	1-5	Town of Rangely Recreation and Public Purpose Application.	Locate transmission lines to the south edge of the corridor.
28	2,8	White River Crossing Nationwide River Inventory.	Consultation with Heritage Conservation and Recreation Service.
30	80	Morgan Municipal Airport	Locate transmission lines away from airports and navigational aids. Submit Notice of Proposed Construction (FAA Form 7460-1) to Federal Aviation Administration.
30	11-20	Strawberry Recreation Complex.	Locate transmission lines to the north side of corridor, using ridges as screening.
31	11	City of Riverdale Park and Recreation Area (Surplus 421k)	Locate transmission lines to the north edge of the corridor.

TABLE 4-45 (continued)

Segment Number	Mileposts	Concerns	Mitigation
31	14	Land and Water Conservation Fund (L&WCF) Park and Recreation Area 292 et al.	Locate transmission lines to the south or west edge of the corridor.
31	13	Land and Water Conservation Fund (L&WCF) Park and Recreation Area 295 H.	Locate transmission lines to the west edge of the corridor.
31	12	Land and Water Conservation Fund (L&WCF) Park and Recreation Areas 66, 158.	Locate transmission lines to the west edge of the corridor.
31	6	Land and Water Conservation Fund (L&WCF) Park and Recreation Areas 290,222 et al.	Locate transmission lines to the south edge of the corridor.
33	5	Green River Crossing Nationwide Rivers Inventory.	Consultation with Heritage Conservation and Recreation Service.
35	24.5-54	Commercial timber production area.	Specific clearing and maintenance of corridor for forest products.
35	5-10	Very high frequency (VOR) station omnidirectional range.	Locate transmission lines away from air navigational aids. Submit Notice of Proposed Construction (FAA Form 7460-1) to Federal Aviation Administration.
35	1-5	Direction finding (DF) antenna.	Locate transmission lines away from air navigational aids. Submit Notice of Proposed Construction (FAA Form 7460-1) to Federal Aviation Administration.
35	21-49	Old Carter Military Road (National Historic Nomination).	Relocation as required along 28 miles of segment.
35	37-44	Proposed High Uintas Wilderness eastern boundary.	Locate line on east side of corridor. Limited tree removal.

TABLE 4-45 (concluded)

Segment Number	Mileposts	Concerns	Mitigation
36	105	Land and Water Conservation Fund (L&WCF) Park and Recreation Area 170, 233.	Locate transmission lines to the west edge of the corridor.
36	100	Land and Water Conservation Fund (L&WCF) Park and Recreation Area 295 L.	Locate transmission lines to the west edge of the corridor.
36	95	Land and Water Conservation Fund (L&WCF) Park and Recreation Areas 204, 237.	Locate transmission lines to the west edge of the corridor.
36	55	Land and Water Conservation Fund (L&WCF) Park and Recreation Areas 32.	Locate transmission lines to the west edge of the corridor.
36	50	Land and Water Conservation Fund (L&WCF) Park and Recreation Areas 32, 125.	Locate transmission lines to the east edge of the corridor.
37	21.6	Gooseberry Campground.	Locate transmission lines to the south edge of the corridor.
37	19.4 & 21.0	Summer House Development.	Locate transmission line near southern edge of corridor.
37	19.6	Organizational Summer Camp.	Locate transmission line as far to north of corridor as possible.
37	15-21	Commercial Timber Production Area	Specific clearing and maintenance of corridor for forest products.

CHAPTER 5
CONSULTATION AND COORDINATION

The Draft EIS was filed with EPA and made available to the public on January 8, 1981.

March 3, 1981 was established as the deadline for submission of written comments.

Public hearings were held February 17, 1981 at Salt Lake City, Utah; February 18, 1981 at Vernal, Utah; and February 19, 1981 at Rangely, Colorado. Copies of the hearing transcript, along with the attendance list, are available for public review at the BLM offices in Salt Lake City and Richfield, Utah, and at the REA office in Washington, D.C.

The list of agencies and others that have requested copies of the Draft EIS is available for review at the BLM District Office in Richfield, Utah. The Draft EIS contains a list of agencies, interest groups, and individuals from whom comments were requested.

All timely written comments and oral testimony from the public hearings were reviewed for consideration in preparation of the Final EIS. Those comments that presented new data, questioned facts and/or analyses, and raised questions or issues bearing directly upon the Draft EIS were responded to by BLM and REA.

The Office of Surface Mining (OSM) provided assistance in reviewing the preliminary draft after submission of a mining plan to OSM.

Substantive comments received too late for inclusion and response in this Final EIS will be answered individually by mail. The late comments and responses, as well as all comments contained herein, will become a part of the project file maintained in the Richfield District Office located at Richfield, Utah, and will be given consideration along with the environmental impact statement during the decision-making process. Federal decisions on this project will not be made until at least 30 days after the EPA Final EIS notice of availability has appeared in the Federal Register. During that 30-day period, written comments on the Final EIS may be submitted to be considered in the decision process.

Oral Testimony From the Public Hearings	Comment Number
Peter Hovingh, Utah Nature Study Society	1-2
Robert L. Dudiak, SOHIO Shell Oil Company	3
Ken Sleight, Ken Sleight Expeditions, Western River Guides Assn.	4-11
Karl T. Augustine, Utah Social Services	12
Jim Godlove, White River Shale Project	13-14
L. Y. Siddoway, for Samuel Snyder, Vernal Mayor	15
L. Y. Siddoway, Uintah Water Conservancy District	16-17
Mike Sullivan, Vernal Chamber of Commerce	18
Robert Gilbert, Uintah Basin Association of Governments	19-21
Charles R. Henderson, Uintah Basin Energy Planning and Developing Council	22-23
Norton F. Tennille, Jr., Arnold and Porter Law Firm	24-25
Angelo Mahleres, Pine Canyon Company	26
Roy Chambers, Jr., Chevron Oil	27
Peggy Rector, Rangely Mayor	28-39

Comment Letter	Comment Letter
U.S. Fish and Wildlife Service	1
Dr. John S. Allen, University of Utah Research Institute	2
Centers for Disease Control - Atlanta	3
Rio Blanco County Road Department	4
Department of the Army, Corps of Engineers	5
Federal Aviation Administration	6
Uintah Basin Association of Governments	7
Elliot Bernshaw	8
Gary Macfarlane	9
Arnold and Porter, Norton F. Tennille, Jr.	10
American Gilsonite Company	11
U.S. Geological Survey	12
Moffat County Planning Director	13
Joyce Newman	14
Utah Audubon Society	15
Water and Power Resources Service	16
Utah Division of Parks and Recreation	17
State of Utah: Office of the Governor	18a
Utah State Planning Coordinator/Utah Department of Health	18b
Soil Conservation Service	19
Colorado River Board of California	20
Bureau of Mines	21
Colorado Department of Natural Resources	22a
Colorado Department of Health	22b
Colorado Office of Energy Conservation	22c
Colorado Department of Agriculture	22d
Colorado Department of Local Affairs/Colorado Division of Planning	22e
Colorado State Department of Highways	22f
Colorado Geological Survey	22h
Colorado Division of Wildlife	22i
Colorado Water Conservation Board	22j
Colorado Historical Society - SHPO	22k
Bruce Plenk	23
Department of Energy	24
Town of Rangely	25
Delaney and Balcomb, Attorneys at Law	26
Office of Surface Mining	27
Deseret Generation and Transmission Cooperative	28
Wyoming Executive Department	29a
Wyoming Department of Environmental Quality	29b
Wyoming State Engineers Office	29c
Wyoming State Highway Department	29d
Wyoming Geological Survey	29e
Wyoming Recreation Commission	29f
U.S. Park Service	30
Colorado West Area Council of Governments	31
Advisory Council on Historic Preservation	32
Federal Energy Regulatory Commission	33
U.S. Forest Service	34
Environmental Protection Agency	35
Rio Blanco County	36
Bureau of Indian Affairs	37

PUBLIC HEARING COMMENTS

Comment 1: Peter Hovingh

...Likewise, since a lot of Moon Lake Project planners are also involved in intermountain power projects, I wonder oftentimes what all this electricity is going to.

Response: Deseret's members have contracted to purchase 176 MW from the Intermountain Power Project (IPP). It is currently anticipated that the IPP unit will be operational; unit 1-1986, unit 2-1987, unit 3-1988 and unit 4-1989. From IPP, Deseret's members could presumably obtain 44 MW in 1986, 88 MW in 1987, 132 MW in 1988, and 176 MW in 1989. Table 1-4 indicates that Deseret's requirements are 180.0 MW in 1985, 215.9 MW in 1986, 305.0 MW in 1987, 397.6 MW in 1988, and 543.6 MW in 1989. Power from IPP will be too little too late to supply Deseret's currently anticipated power requirements.

Deseret's members therefore, propose to market through 1991 most of their IPP capacity to the California municipalities which are also participating in IPP. Twelve MW (3 MW from each unit) of IPP capacity will be utilized by 1989 to supply loads of one Deseret member, Mt. Wheeler Power, Inc. Deseret will attempt to bring Moon Lake unit 1 on line by March 1985 when its contract with UP&L for supplemental power terminates. It will attempt to bring Moon Lake unit 2 on line by 1988 when additional power is needed. Constructing Moon Lake unit 2 would most effeciently utilize the fuel supply, cooling water supply, and other common facilities related to the Moon Lake plant. These units are predicted to be fully loaded by 1991, and it is planned that Deseret would utilize the remaining 164 MW of its rights to IPP power in 1992.

Table 1-6 will give some indication of the anticipated load which necessitate the planned additions of generating facilities. Deseret's members anticipate steady additions of new consumers in the residential, irrigation, and small commercial classifications. The bulk of the historical usage and predicted future usage is, however, in the large commercial classification. This consumer classification includes industrial accounts such as oil fields, pipelne pumping, mines, etc. A great deal of the anticipated load growth is in this classification and would include new coal mines, new uranium mines, and exploratory developments related to oil shale. The load predictions include 187 MW in 1989 and a total of 334 MW of unit 2 in 1994 for the MX missile system.

Comment 2: Peter Hovingh

...The main concern we have with power plants wherever they're constructing large energy development is the destructive aspect of the public land due to off-road vehicles. And in all reports this is unmitigatable, MX is unmitigatable, and I find that the State and Federal Governments in trying to find out, in their great, big struggle to determine who controls the land, both of them couldn't control ORV destruction of the rangeland, the wildlife habitat, and of wildlife. This always distresses me.

It seems like when power plants are being constructed, they should outlaw off-road vehicles in a 15- or 20-mile circumference around the power project.

Not only is the land being destroyed, but, of course, water is being consumed and more water is being taken from the Green River; and again recreation and other things that people come to Utah for and live here in Utah for will be sacrified.

Response: Standard measures to minimize or eliminate adverse impacts stated in the Draft EIS include (Item "s", page 120) restrictions on cross-country vehicle operation related to construction and operation of the proposed project. However, as noted, the improved access created by construction actions would probably increase ORV use in some areas. Land managers would monitor ORV use under Executive Order 11989, Off-Road Vehicles on Public Lands, and "whenever he determines that use of off-road vehicles will cause or is causing considerable adverse effects on soil, vegetation, wildlife, wildlife habitat, or cultural or historic resources of particular areas or trails of the public lands, immediately close such areas or trails to type of off-road vehicle causing such effects, until such time as he determines that such adverse effects have been eliminated and that measures have been implemented to prevent future recurrence." However, these actions are largely beyond the scope of this EIS and must be considered on a case-by-case site specific basis.

Comment 3: Robert L. Dudiak

...However, our main area of concern on the Draft EIS is the jeopardy decision given by the Fish and Wildlife Service Area Manager on Moon Lake's use of an existing water right on the Green River.

Moon Lake power plant, through Deseret Generation and Transmission Company, holds an approved water right application on the Green River for 21,720 acres per year. To deny Moon Lake the use of that approved senior water right application is grossly unfair. By requiring that Moon Lake release water "on a daily basis from Flaming Gorge equal to an amount being diverted for the Moon Lake power plant" in effect requires Moon Lake to secure a second water right or purchase. This is a dangerous precedent and SOHIO strongly opposes such action by the Fish and Wildlife Service.

Response: This response covers Oral Testimony Response 13 and Letter Response 16.1, 18a.25, 19c.1, 22a.3, 22j.2, 26.10, 26.11, 26.12, 26.14, 29a.1, 29c.1, 30.9, 30.32, 36.5, 36.41, 36.42, and 36.43.

As a result of these comments and apparent confusion over the use of Flaming Gorge water as a reasonable and prudent alternative to avoid jeopardy to endangered species, a meeting was held March 12, 1981 to discuss and clarify the situation. Represented at the meeting were:

Bureau of Land Management
Water and Power Resources Service
U.S. Fish and Wildlife Service
Utah Division of Water Resources
Utah Water Rights Office
Utah Division of Wildlife Resources
Utah Department of Natural Resources
Deseret Generation and Transmission Cooperative

One of the objectives of the meeting was to clarify the position of State of Utah, Water and Power Resources Service, and U.S. Fish and Wildlife Service on this matter.

This EIS has been revised to reflect the interpretation and information discussed at the meeting. Specifically, that information is as follows:

Endangered Species Act requires the preparation of a biological opinion. The law requires USFWS to recommend reasonable and prudent alternatives. USFWS recommended the purchase of Flaming Gorge water as the best alternative to avoid jeopardy to the endangered fishes. At the time the biological opinion was written, USFWS was conducting endangered fish studies which are scheduled for completion in January of 1982. The USFWS recommended alternative is actually an interim solution which would allow the proposed project to proceed without waiting for the results of the ongoing fish studies. Depending on the outcome of those studies, the need for use of Flaming Gorge water may or may not be continued for the Moon Lake project. In January of 1982, it is expected that USFWS will issue precise recommendations for water flows as they relate to the actual needs of the endangered fish.

Assuming that Flaming Gorge water could be used, several interrelated factors must be considered. These include water availability, compact and water right considerations, operational patterns, and aquatic impacts.

According to WPRS, Flaming Gorge water is available for "beneficial and consumptive uses downstream based on contracts for the purchase of water" (WPRS March 2, 1981). By letter of July 11, 1980, Deseret applied to WPRS for water from Flaming Gorge Reservoir. By letter of Feb. 24, 1981, WPRS issued a letter of intent to enter into negotiations for a long-term contract for water from Flaming Gorge Reservoir to provide Deseret with up to 12 cfs to meet the needs of the Moon Lake power plant unit 1. In the future, unit 2 would require an additional 12 cfs either from Deseret's existing water right or from Flaming Gorge water. The existing Deseret water right is for 30 cfs. WPRS may sell water on contract but does not agree to modify Flaming Gorge power plant releases for fish mitigation except for Colorado River system projects.

Reconciliation of Flaming Gorge purchased water with Deseret's existing water right would still be under jurisdiction of the State of Utah. The State of Utah may allow Deseret to maintain their existing water right along with water purchased from Flaming Gorge. On the other hand, the State of Utah may require Deseret to relinquish their existing water right if the permanent use of Flaming Gorge water is needed. Currently Utah has no legal minimum flow requirement for the Green River which would require Deseret to relinquish their existing water right. Any contract which may be negotiated between WPRS and Deseret would be within the framework of the Upper Colorado River Compact and existing provisions for Flaming Gorge allocations. Upstream water rights and depletion opportunities in Wyoming would not be affected. Any sale of water from Flaming Gorge Reservoir for use in Utah would require the approvals of the State of Utah and Department of the Interior. There is not assurance that such approvals, would be forthcoming by the time Deseret proposes to begin construction.

The Endangered Species Act is applicable only to those projects which require Federal permits or use of Federal lands. Developments on private or State lands which are able to use water without Federal involvement would not be affected by any precedent attributed to the Moon Lake Biological Opinion.

Consultation by federal agencies under the Endangered Species Act is done on a case-by-case basis, and reasonable and prudent alternatives are identified accordingly. It does not follow that use of Flaming Gorge water would set a precedent or automatically be the best alternative considered in every case. USFWS takes many considerations into account in identifying reasonable and prudent alternatives on a case-by-case basis.

USFWS recommendations specific for the needs of the endangered fish are being delayed throughout the Upper Colorado Basin until ongoing river studies are completed. Projects in Wyoming, Colorado, and Utah may or may not be delayed depending on the opportunity to proceed with reasonable and prudent alternatives. This also would be on a case-by-case basis.

It is acknowledged the use of Flaming Gorge water would not create new water. An overall depletion of the system would occur. The goal would be to use Flaming Gorge purchased water on an "on-call" basis to avoid the lowering of the river during crucial periods which would otherwise occur with the use of the existing water right. The intent of the Biological Opinion is clarified on this point; that is, the water would not necessarily be used on a year-round daily basis. The discussion in the Draft EIS relative to depleted flow amounts has been revised to reflect a flexible pattern of operation. The water purchased on contract would be released on call from Flaming Gorge Reservoir for use at Deseret's point of diversion as river operating conditions may dictate.

Impacts to the Green River downstream from the dam due to release of 12 cfs would be essentially unnoticeable in terms of water flows, salinity, and temperatures. Impacts to the reservoir from the increased withdrawal likewise would be unnoticeable because of the small amount of water involved. The same would be true for a future release of an additional 12 cfs, if needed.

In response to comments on the EIS relating to the official USFWS biological opinion, and due to uncertainties of water sales and diversion transfers involved with the purchase of Flaming Gorge or agricultural water, the BLM has re-initiated consultation under Section 7 of the Endangered Species Act to explore additional reasonable and prudent alternatives for avoidance of jeopardy to endangered fish species.

It is expected that the results of the reconsultation will be available prior to BLM and REA decisions on the project. Any amendment to the official biological opinion will be considered in the decision-making process and will be available to the public with the official record of decision.

Comment 4: Ken Sleight

...It (the project) would be most damaging to our operations and the river environment. The project would have broad impact within the entire Green and Colorado River basins. We should not allow further desecration of our free-flowing rivers. Already many miles of our rivers have been dammed, and we have seen decreased or erratic flows in the remaining rivers.

Response: In and of itself, the proposed 24-cfs withdrawal from the Green River basin due to the Moon Lake project would not cause significant impacts on the Green or Colorado River basins. The withdrawal would constitute less than 1 percent of the average annual flow of the Green River and would cause little effect on water quality, velocity, or temperature under the present situation.

However, as noted on page 253 of the Draft EIS, the cumulative impacts of water developments in the upper Colorado basin may cause significant impacts on the flow of the Green River.

Comment 5: Ken Sleight

...There should be more study regarding the cumulative effects of this project in combination with existing and proposed water, power, and reclamation projects. This would include the studies of cumulative effects of the Flaming Gorge and Glen Canyon Dams; also of the proposed projects, namely: The Central Utah Project, the Juniper-Cross Mountain Dam Project, the Cheyenne Water Supply Project, and the White River Dam Project.

Response: Accurate site-specific analysis of the cumulative effects of water developments in the upper Colorado River basin is not possible because of the uncertainty surrounding future developments. For example, in the Yampa River basin there are about 30 projects in various stages of planning, assessment, and evaluation. Not all of them can be built because some overlap at nearly identical sites and the aggregate would require more water than is available.

Similar uncertainty surrounds future operations of Flaming Gorge and Glen Canyon Dams. Although future releases are expected to be similar to those at present, they will be influenced by new withdrawals. Flows will be further affected by the location of new withdrawals (e.g., Walker Hollow for this project).

There are, however, studies by state and federal agencies which estimate future depletions and flows. The Quality of Water-Colorado River Basin Progress Report No. 10 (USDI, 1981) presents estimated future conditions in the Colorado basin by sub-basin. Worst-case depletions by the year 2000 are estimated on page 253 in the Draft EIS. Flow reductions of this magnitude would unquestionably have significant impact on the riverine ecosystem and the recreational values presently afforded by the Green River.

Comment 6: Ken Sleight

...There are at times now insufficient water flows to conduct normal-type trips at certain times of the season. The low levels are detrimental to boating operations. With depleted flows its effects would be directly felt in Desolation and Cataract Canyons.

Response: The proposed water withdrawals for the Moon Lake project would constitute less than 1/2 of 1 percent of the average annual flow of the Green River as measured at Green River, Utah and even less of the flow through Cataract Canyon. There would not be any significant recreational impacts due to a flow reduction of this magnitude and its effects would be largely imperceptible in the canyons named.

Comment 7: Ken Sleight

...The increased contribution of salt is of concern, not only its effect on land and water resources, but it would place a demand to change other existing natural features, such as plugging springs or diverting springs such as Crystal Springs, the LaVerkin Springs or the Blue Springs down in the Grand Canyon National Park area.

Response: Increased salt concentration is recognized as a problem. The Moon Lake project is not expected to have significant impact in this area. (See the Draft EIS, pages 253 to 255 and Oral Testimony Response 8.) The effects of plugging or diverting the springs mentioned in the comment are beyond the scope of this EIS.

Comment 8: Ken Sleight

...Decreased water supply means increased concentration of various types of pollution. We are dependent on high-quality water. Increased industrialization and population and the many resulting projects will contribute to the pollution and the problems.

Response: The only expected water pollution resulting from water withdrawals would be increases in total dissolved solids (TDS). It is projected that the water withdrawal would increase TDS by about 0.8 mg/ℓ at Green River, Utah and about 1 mg/ℓ at Imperial Dam, California. (See table 4-8, page 255 in the Draft EIS.) Also, no detectable changes in temperature, pH, or other pollutants are expected to occur.

Comment 9: Ken Sleight

...The changing flow of water causes changes in the river channeling. The flow of the river determines the carrying capacity; the amount of sand carried determines the channels and the establishment of our beaches and river banks.

Response: The worst-case situation that can be expected on the Green River is a reduction of 0.69 percent of the average annual flow. This could be as much as 2.06 percent of the lowest annual flow recorded. This would border on being insignificant. Under present river management below Flaming Gorge Dam, there would not be any change in carrying capacity in the amount of sand or silts carried by the river. The river banks and beaches would not be affected by this project's water withdrawals.

Depending on hydropower demands, releases from Flaming Gorge Dam range from 800 to 4,600 cfs. At times, the flows have dropped to the minimum releases of about 400 cfs. The river may rise a foot or two in minutes when releases are made for power production. However, during the summer, the WPRS attempts to maintain a minimum of 1,200 cfs daytime flow below the dam; hence, a 24-cfs withdrawal would hardly be detectable.

Comment 10: Ken Sleight

...Biological differences come about due to the tampering with river fluctuations. Already we have seen the encroachment of the exotic species, tamarisk. There are no longer the large floods to clean out this tamarisk and to provide clear and clean beaches. Tamarisk thrives in this sandy, salt-ladden soil. Our national parks are feeling this encroachment.

Response: Tamarisk (*Tamarix chinensis*) is currently abundant along the Green and White Rivers. Altering the fluctuation of rivers does, to some extent, give competitive advantage to this non-native phreatophyte over native riparian vegetation. This is because the frequency and extent of flooding is reduced, thus allowing the build-up of fuel which, with the occurrence of fire, would kill native cottonwoods and willows and favor the vigorously root-sprouting tamarisk. Further, the reduced flooding and scouring of the riparian zone would put cottonwood establishment at a disadvantage because of the flooding required for cottonwood germination.

Some authors contend though, that even without dams or other means which control the natural fluctuation of rivers, it would be highly unlikely that cottonwood communities would maintain their dominance over tamarisk (Ohmart, Deason, and Burke; 1977).

Comment 11: Ken Sleight

...There has been no detailed study regarding the minimum flow needed to preserve a viable boating industry. This should be accomplished.

I ask now for an EIS that will cover the impact of these accumulative effects. This is absolutely necessary. That has not been done in your plan, and it's a surprise to me that no attempt was made to assess impacts on the river-running operations. Not one thing in the entire study was devoted to that.

Now, speaking as the Utah Director of the Western River Guides Association, an association of river guides and outfitters, we ask that we have more information with regard to the overall effects this project will have on commercial and general river-running, boating, and its operations. We are in need of more information with regards to the cumulative effects this project will have in combination with other existing and proposed water power and reclamation projects.

Response: Mr. Patrick Conley, President of the Western River Guides Association, was contacted regarding flows required for river running on the Green River. He estimated that the minimum flow necessary for viable operations through Desolation Canyon is 4,000 cfs (Conley, 1981). If flows are below that level, rapids may be impassible for large rafts and difficult for motorized rafts; also, the float between rapids is slow.

The BLM Price River Resource Area, responsible for management of the Desolation Canyon section of the Green River, estimated that the minimum flow for rafting is approximately 3,000 cfs. While flows this low will accommodate rafting operations, the trip can be hard on equipment. Flows this low were recorded during the summer of 1977. During that summer, nearly all trips scheduled by commercial operators were conducted. There were several cancellations by private parties, however, due to the low flows.

Even during the drought year of 1977, the proposed depletions of the Moon Lake project would have been less than 1 percent of the monthly average flows recorded at Green River, Utah during the rafting season.

Therefore, it is concluded that flows diverted by the proposed project would not significantly affect river-running operations through Desolation Canyon.

Comment 12: Karl Augustine

...In particular we are concerned about the mitigation of impacts during the construction of this project in the areas of social and human services. In our review of boomtown situations and fast-growth experiences which Utah and other states have had, we have found recurrent reports of increases in crime, suicides, and other mental health problems; of alcohol and drug abuse; domestic and family violence resulting in child abuse and spouse abuse; also special problems which vulnerable groups, such as the aged and handicapped, have as a result of inflation and the lack of appropriate services brought on by the rapid influx of populations due to energy developments.

Representatives of the Department of Social Services have noted on several occasions that environmental impact statements, environmental assessment reports, development and master plans disregard such problems.

We are aware that your DEIS indicates on page 298, Quality of Life Indicators and Cumulative Socioeconomic Impacts, the occurrence of such "...social ills at a greater than proportional rate with population increases" and that "...increased crime would also be an evident social cost of energy-related growth." However, we feel that your mitigation strategies of "...all developments most likely would not take place as scheduled or planned, thus spreading the impacts over a longer time period" and "The needs of local communities would outstrip their financial resources requiring them to rely on state and federal technical and financial assistances" are inadequate. In fact, your Special Mitigation Measures on page 318 of this same DEIS are far more detailed for the natural environment than they are for the human environment.

In conclusion, we seek to develop a greater understanding between energy developers and governmental agencies concerning the areas of human and social services by submitting this comment to your staff for consideration. We hope that your final analysis might include more adequate mitigation strategies in these areas.

Response: See Appendix 11 in this Final EIS: Deseret's Proposed Mitigation of Project-Induced Socioeconomic Impacts. Recognizing that the severity of primary and secondary social and human services impacts are interrelated with community physical facility impacts (i.e., housing, schools, etc.), Deseret and Western Fuels have proposed a range of general mitigation measures to be coordinated with affected community officials. See Response 1 to the letter from Rio Blanco County (Comment Letter 36) for additional discussion of responsibilities for socioeconomic mitigation.

Comment 13: Jim Godlove

...The mitigation measures recommended by the Fish and Wildlife Service involved flow augmentation by releases of additional water from Flaming Gorge Reservoir into the Green River and purchase and withdrawal from use of irrigation water rights of the Green River.

Each of these measures establishes a dangerous precedent. This action, in effect, could prevent any party, whether municipal, agricultural, or commercial, from developing an approved water right which is held on virtually any tributary of the upper Colorado River regions. Likewise, such a precedent could prevent even the small efforts to develop energy resources within the Uinta Basin.

White River Shale Project is vitally concerned and is opposed to such a precedent being established. And to divert briefly from my prepared text, I might mention that if such a precedent is established, the development of White River Shale will be delayed indefinitely.

We ask that the BLM and the Fish and Wildlife Service reconsider the potential long-term impact of this action.

Response: See Oral Testimony Response 3.

Comment 14: Jim Godlove

...While on the subject of water resources development, White River Shale Project is also concerned by the suggestion on page 14 of the Draft EIS that, "The USWS is involved in a study on the Green and White River systems to determine the distribution, essential habitat, limiting factors, and flow requirements of three endangered fish species in the river." This study, particularly in the White River, has been proposed for several months and it's scheduled for completion in January 1982.

These studies are critical in resolving the important water resource issues facing not only the Moon Lake project, but many others in the basin. However, studies in the White River have not yet begun and, unless affirmative action is taken soon, it is our understanding that the results of such a study could be delayed considerably.

Response: Money has been arranged by BLM and studies in the White River are currently being initiated by the USFWS.

Comment 15: Mayor Samuel Snyder (read by L.Y. Siddoway)

..."Now, therefore, be it resolved by the Vernal City Council:

Section 1. That Vernal City endorses the Moon Lake Power Plant Project and approves the cooperative effort of Deseret Generation and Transmission Cooperative to mitigate any project-induced impacts; and

Section 2. That Vernal City endorses the findings of the Draft Environmental Impact Statement regarding projected socioeconomic impacts to Vernal City.

Resolved by the Vernal City Council this 12th day of February 1981.

Response: Thank you for your comment. This information will be used in the decision-making process.

Comment 16: L.Y. Siddoway

...I have reviewed the Draft Environmental Impact Statement, Moon Lake Power Plant Project and have concluded that this document assesses the environmental problems and answers in an adequate manner.

The Conservancy District has been involved in the development of the water resources of Uintah County and the Uinta Basin since its formation in 1956. Our activities toward water project developments include Flaming Gorge, Vernal, Jensen, Uintah, Bonneville, and Upalco units of the Central Utah Project and the White River Dam. We have also participated in and supported several smaller projects funded by individuals and by the State of Utah.

We have carefully studied the alternatives as indicated to supply water to the Moon Lake plant at the Bonanza site.

Response: This information will be used in the decision-making process.

Comment 17: L. Y. Sidoway

...We seriously question that the proposed pumping of less than 1 percent of the flow of the Green River at the well location near Walker Hollow would jeopardize the endangered species in the Green River. At this time there is no conclusive evidence that this reduction in Green River flows would have any effect on the three endangered species. Mother Nature will reduce or increase the Green and Yampa River flows on a yearly basis much more than is planned to divert for the Moon Lake power plant.

Response: USFWS and BLM are required by law to protect endangered species. If it is likely that a proposed project may jeopardize the continued existence of listed species, a formal biological opinion of jeopardy would probably be given by USFWS. As stated in Appendix 23 of the Draft EIS, Section 7 of the Endangered Species Act also requires USFWS to recommend reasonable and prudent alternatives for any proposed project likely to jeopardize the continued existence of a listed species. The purpose of these alternatives is to avoid jeopardy to a listed species while allowing implementation of the proposed project. This issue is addressed in more detail on page R-153 of the Draft EIS.

Water depletions resulting from the Moon Lake project would add to the cumulative impacts which concern USFWS. Cumulative impacts from a number of small withdrawals could be more significant than a reduction in flow from a single project. The USFWS studies currently being conducted and scheduled to be completed by January 1982 should provide important data necessary to answer these unsettled questions relative to cumulative impacts, critical flow levels, and habitat requirements of these endangered fish. It is the opinion of the USFWS that continuous water depletions should not occur until the specific needs of the endangered fish found in the Green and White Rivers are known. The subject of "jeopardy" is further explained in Letter Response 28.9.

Comment 18: Mike Sullivan

...We have reviewed the Draft EIS and feel it addresses our socioeconomic concerns satisfactorily. Deseret G&T has been planning and working with our state and local planning groups to assist in handling the impacts which will accompany the growth of our area. We are desirous of the business growth in our Community and feel confident that our community can provide the services needed to support the construction and operation of the power plant in Uintah County.

Response: This information will be used in the decision-making process.

Comment 19: Robert Gilbert

...We would like to comment on the socioeconomic portions of the EIS. Generally the housing and socioeconomic conditions reported for the existing communities are correct. The problem of the high-interest rates and a strong demand for available capital in the housing market will undoubtedly result in an increase in mobile homes.

Response: See Letter Response 7.1.

Comment 20: Robert Gilbert

...The schedule of cumulative impacts on page 299 in the Draft EIS is partly out of date. We will provide an update of the construction schedule of the project for the State of Utah.

Response: See Letter Response 7.1.

Comment 21: Robert Gilbert

...We are concerned about the social ills that are alluded to on page 298. Our concern is specifically one of extent: How many of and to what degree should we expect to experience the social ills that are mentioned? We would suggest that the EIS go into more detail in this area. Thank you very much.

Response: See Letter Response 7.3.

Comment 22: Charles R. Henderson

...We feel that a small amount will not have a significant effect on what habitat there may be in the White River, or that such a small amount of water is essential to the perpetuation of any endangered or threatened species of fish that may propagate in the White River.

Response: See Oral Testimony Response 17.

Comment 23: Charles R. Henderson

...The unresolved endangered species problem of whether the withdrawal of 30 cfs of water from the Green River would jeopardize the continual existing of fish species in the Green is yet to be resolved.

This question resolved itself down to determination of a presently unknown factor presently under study. I quote from Appendix 23, The Fish and Wildlife Service letter of December 5, 1980, to the Utah State Director of the BLM, page R-151, fourth sentence of the last paragraph quote: "Flows below an unknown critical level could result in the loss of habitat restricting the endangered fish population increasing the danger of disease and predation by other fish" end of quote. Emphasis added.

The late summer flow of the White is so small as compared to the flows of the Green River that the flows of the Green, less the proposed diversion of 30 cfs, would be substantially higher than the flow of the White River. So, unless the natural flow of the White River is not already below the unknown critical level, then, the 30 cfs of diversion would not reduce the Green to a level comparable to the flow of the White River.

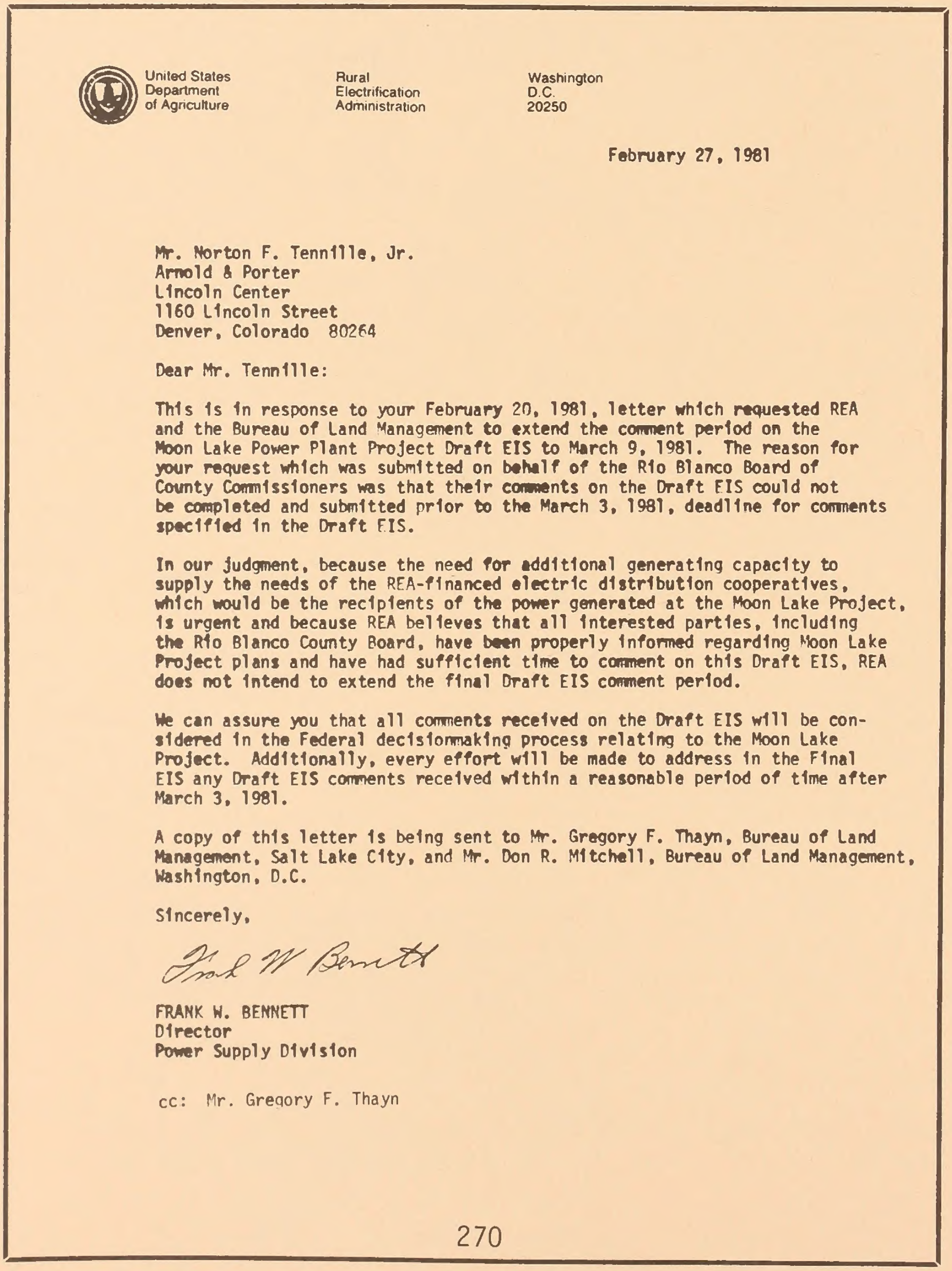
Response: The USFWS is required by law to protect endangered species. Cumulative effects from small withdrawals are of as much concern as individual project withdrawals. A study is currently being conducted on the Green and

White Rivers by the USFWS to determine habitat requirements of these endangered fish. This study is scheduled for completion in January 1982. It is anticipated that critical flow levels and cumulative impacts from small withdrawals can be determined at that time. Presently, it is the biological opinion of the USFWS that continuous water depletions should not occur until the specific needs of the endangered fish found in the Green and White Rivers are known.

Comment 24: Norton F. Tennille, Jr.

...In behalf of the Rio Blanco County Commissioners, I would like to officially request that the period for comment be extended until March 9, 1981, which would provide the full 60-day period, which is normally the minimum period provided for comment on a EIS in the BLM regulations.

Response: In response, the following letter is enclosed:



United States
Department
of Agriculture

Rural
Electrification
Administration

Washington
D.C.
20250

February 27, 1981

Mr. Norton F. Tennille, Jr.
Arnold & Porter
Lincoln Center
1160 Lincoln Street
Denver, Colorado 80264

Dear Mr. Tennille:

This is in response to your February 20, 1981, letter which requested REA and the Bureau of Land Management to extend the comment period on the Moon Lake Power Plant Project Draft EIS to March 9, 1981. The reason for your request which was submitted on behalf of the Rio Blanco Board of County Commissioners was that their comments on the Draft EIS could not be completed and submitted prior to the March 3, 1981, deadline for comments specified in the Draft EIS.

In our judgment, because the need for additional generating capacity to supply the needs of the REA-financed electric distribution cooperatives, which would be the recipients of the power generated at the Moon Lake Project, is urgent and because REA believes that all interested parties, including the Rio Blanco County Board, have been properly informed regarding Moon Lake Project plans and have had sufficient time to comment on this Draft EIS, REA does not intend to extend the final Draft EIS comment period.

We can assure you that all comments received on the Draft EIS will be considered in the Federal decisionmaking process relating to the Moon Lake Project. Additionally, every effort will be made to address in the Final EIS any Draft EIS comments received within a reasonable period of time after March 3, 1981.

A copy of this letter is being sent to Mr. Gregory F. Thayn, Bureau of Land Management, Salt Lake City, and Mr. Don R. Mitchell, Bureau of Land Management, Washington, D.C.

Sincerely,

Frank W Bennett

FRANK W. BENNETT
Director
Power Supply Division

cc: Mr. Gregory F. Thayn

Comment 25: Norton F. Tennille, Jr.

... Considering the controversial nature of the project and some of the decisions that must be made in connection therewith, we would urge that the agencies extend the comment period by a period of, I think it would be 7 days, only 1 week.

We think that it would be invaluable to us and others who will be commenting on it, and we can't see that the project proponent or anyone would be seriously prejudiced by giving us the 60-day period normally provided in this case.

Response: See Letter Response 12.1.

Comment 26: Angelo Mohleres

...I'm supporting the Utah plant site, because if we don't put it in now and we have delays, Utah Power & Light has threatened to cut off power and we need the power here. Chevron Oil Company is dependent on it as are the people. And if we get more delays, why, it has been stated that the plant wasn't wanted to begin with by Governor Lamb and his cohorts.

So, Moon Lake has gone to great extents and trouble, and it has cost money. Now, how far can we go? We have been debating this issue for years. Let's go with it and get our coal mine going, and let's get this show going.

Response: This information will be used in the decision-making process.

Comment 27: Ray Chambers

...We would like to see construction begin. If it's delayed, that's going to cause us one of these days to be short of power, and when there is a shortage of power, the industrial user is the first one that's going to be put off.

Response: This information will be used in the decision-making process.

Comment 28: Peggy Rector

...The Town's population is now approximately 2,000 people. According to the Draft EIS the population will increase by a minimum of 1,578 people by 1984 on the low end of the scale with both units 1 and 2 located at Bonanza. If both units 1 and 2 are located in Rio Blanco County, the population of Rangely will increase by 2,257 people in 1985.

These figures are peak figures and presume that both units will be built. If only unit 1 were built, the population projection would, of course, be lower as discussed in the Draft EIS. The Colorado West Area Council of Governments has projected base and nonbase population to be 3,808 people at peak in 1985, and a 3,240 permanent population.

Response: Population projection is not an exact science. Different methods produce different results, therefore, the difference you cite. The various data sources and assumptions used in the analysis are contained in the Draft EIS and/or the material incorporated by reference.

Comment 29: Peggy Rector

...Population Dispersement: Nowhere in the Draft EIS is there included a breakdown of where the new population will reside. We believe that this analysis should include an examination of existing subdivisions in and out of town, the constraints on locating personnel in town or in the county, in-fill potential in town, existing zoning and land use plans, utility constraints, and so forth.

The reason for the inclusion of a population dispersement analysis is to allow the Town sufficient lead time - tax lead time, administrative lead time, and planning lead time - to prepare for the in-town impact. How else can the Town plan to serve its new customers with gas or water unless it has some idea where a population, double its present size, is going to reside? How can town governmental staffing patterns be projected?

Response: In the Draft EIS tables 4-11 through 4-14, 4-23 through 4-26, 4-31 through 4-33, and 4-36 through 4-38 contain population distribution estimates.

The purpose of an EIS (as stated in section 1502.1 of CEQ regulations) is to serve as a disclosure document to be used by Federal officials to plan actions and make decisions. In this capacity, the EIS attempts to project general impacts so that the decision-maker can make an informed decision. This does not require the detailed local planning data you request. However, the local governments may use the data presented in the EIS.

The intent of the EIS is not to do planning for the impacted local governments, but rather to project impacts so the local governments can then assume their responsibility for detailed planning. Please refer to Letter Response 36.1 for additional discussion of local involvement in socioeconomic mitigation.

Comment 30: Peggy Rector

...The three elements of local government budgeting are: (1) Operations; (2) Capital Expenditures; and (3) Enterprise Funds. Of course, each of these have an expenditure and revenue side.

The Town believes that annualized projections for a 10- to 15-year period for these three budgeting functions should be included in the Final EIS. This should be accomplished on a line item or program basis and include the mandated and elective functions.

Response: Local government budgeting and budget projections are a responsibility of the local governments and therefore, the specific details are beyond the scope of the Federal EIS. This EIS does address all of the various socioeconomic considerations to provide an overall perspective of the impact potential. The budgeting concerns of the Town of Rangely are noted and will be considered. See Oral Testimony Response 29.

Comment 31: Peggy Rector

...The Draft states that: "Rangely operates water and sewage treatment facilities to handle a population equivalent to 5,000 and 6,000, respectively. These are designed for expansion to accommodate a population of 10,000. This capacity would be adequate to handle expected population associated with the project."

The capacity of the water treatment plant might be adequate, if expanded, but unless the Town's current request for 1983 Oil Shale Trust Fund funding of $3.1 million for water plant expansion is approved by the legislature, it is doubtful that a population of 5,000 can be served. This number could very nearly be reached by the population impact of the Moon Lake project alone. The $3.1 million does not include substantial outlays for water system distribution improvements. Some $500,000 is being requested for the 1981 Oil Shale Trust Fund allocations for this purpose.

Response: Thank you for your comment. This information will be used in the decision-making process.

Comment 32: Peggy Rector

...The Draft EIS does not take into account the long-range debt the Town has incurred. Among other long-term debts owed, some $1.2 million is owed to the Economic Development Administration and the Colorado Water Conservation Board. This latter debt the Town has not been able to start repaying since incurring it in 1978 for systems expansion and improvements. Another $150,000 loan application for water plant improvements was approved in January, 1981.

The Town has attempted to meet these liabilities and high operational costs with its water rates and plant investment fees. This simply has not been sufficient to date. There is nothing on the horizon which indicates that operational improvements, expansions, and existing and future long-term debt that might result from the increased population of the Moon Lake project can be totally handled by plant investment fees and water rates. This is a logical area of impact mitigation.

Response: The new information has been incorporated into Chapter 3, "Rangely Municipal Water Systems" section of this Final EIS. We agree that this is an area of potential mitigation. It could be the subject for further discussions between Deseret and the Town of Rangely.

Comment 33: Peggy Rector

...The Town would be interested in learning about Deseret's plans for meeting the larger housing impact.

The Town is equally concerned about housing; perhaps the single most important aspect of maintaining quality of life on the Western Slope, and, yet, perhaps the most difficult goal to achieve. Although the latter may be true, housing's very importance to the entire fabric of the Rangely community, where very little moderate and medium housing exists, increasingly makes housing local government's business, despite traditional reliance on the private sector to meet this need.

As an example of its concern, the Town commissioned at considerable expense two studies which were recently received. These two extremely important studies dealt with the Rangely housing market demand for affordable housing and ways to meet that demand. These studies will be made available to the joint lead agencies for inclusion as reference material germane to the Draft EIS for the Moon Lake project.

We believe that prior to adoption of the Final EIS, the Town should be more specifically informed of Deseret's housing mitigation plan, including the time table. These efforts should be judged against the findings of the two reports cited above, as well as against the planning and development and review processes which the Town will have to have in place to assure quality development.

Response: The EIS team requested a copy of the housing studies referred to in the comment. They were not received by BLM in time for inclusion in the Final EIS. The housing studies should be useful in further discussions with Deseret as suggested in Letter Response 36.1.

Comment 34: Peggy Rector

...We are not substantially in agreement with the assertion in the Draft EIS that mobile homes may be Rangely's only alternative for moderate income families in view of high construction costs and mortgage rates. A cooperative effort of industry and the Town should include a review of development review standards, peak demand versus permanent housing needs, land development costs, construction and interim financing, and ownership and permanent financing.

Response: We agree that a cooperative effort between local governments and industry would be useful in finding a solution to this potentially serious problem. However, it is our belief that there would still be extensive use of mobile homes for temporary units.

Comment 35: Peggy Rector

...Cumulative impacts: The Draft EIS makes very brief mention of cumulative impacts that may affect the Town of Rangely. One can only wonder. As a draft is perused, one knows there is only so much service the Town can provide, despite its reputation for "being ready for development." So, one cannot fail to conclude that Deseret will be consuming a great deal of the Town's current excess capacity.

This amounts to a source of instant social and economic impact analysis. Not overly sophisticated, but nevertheless, meaningful enough. Consumption of "excess capacity" means that there will be a consumption of excess land, water treatment capacity, sewer treatment capacity, fire protection, classroom space, health care facilities, medical personnel, and so forth. What happens, one muses, when other significant energy development begins to be felt in the region and in Rangely, and their impacts analyzed - Ca Tract Multi-Mineral, Ua Ub, Phillips, Chevron expansion, increased gas exploration? What then?

We do not believe that the Draft EIS satisfactorily addresses the problem of cumulative impact. COG, for example, believes that the Ca Tract and Moon Lake projects alone could bring total population to the Town of somewhere between 8,240 and 8,740 permanent population by 1985, a number far in excess of what the Town can hope to serve at this point.

While the numbers might be questioned, we believe that the Final EIS should take such impact on the Town of Rangely thoroughly into account, as well as provide growth management strategies for meeting total impact. Please recall that the Moon Lake Project represents only 17 percent of the total work force of all energy-related projects in the area.

Response: BLM recognizes the potentially serious cumulative effects of development facing the Rangely-Vernal impact area. However, as we attempted to analyze these cumulative impacts in detail, it was discovered that the variables involved made such a detailed study extremely speculative. It became clear through our research and conversation with local government authorities that both Rio Blanco and Uintah Counties have anticipated a population "boom" (which has not yet materialized) for a number of years. This appears to be due to the uncertain nature of oil shale and tar sands development and the changing proposals to develop these energy potentials.

In an article in the Rangely Times (LeMoine, 1980), the problem is expressed as follows:

> "...Everyone says it's coming but, no one seems certain about the magnitude of energy growth. This uncertainty could impair the accuracy of long range health care planning. Parker (Bill Parker, Rangely Hospital Administrator) explains the dilemma, "If we only knew how much we were going to grow. Every 'expert' gives you a new set of figures. I think the oil shale, coal and utility companies should give us some clear-cut answers. How can you plan in these uncertain circumstances?"..."

Therefore, it was concluded that projections for the area are so uncertain, that basing the analysis on them would raise questions as to the validity of the projections as well as their implications for the analysis. The result of using uncertain projections and alternate assumptions would reduce the usefulness of the EIS as a decision-making tool.

Tables 4-12, 4-14, 4-24, and 4-26 in the Draft EIS all contain projected cumulative population numbers for Rangely and Rio Blanco County provided by the Colorado West Area Association of Governments.

The request for inclusion of growth management strategies is beyond the scope of the EIS.

Comment 36: Peggy Rector

...The immediate question with respect to the Draft EIS for Moon Lake is the need to include cumulative impact information in the Final EIS. Ultimately, the Town and Deseret should plan to enter into a contractual relationship for impact mitigation. The presumption contained in the Draft EIS that the "town has the capacity to meet the impacts," is a presumption without validity unless it can be judged against a cumulative impact analysis. The absence of such data can serve to slow up an otherwise expeditious agreement between the Town and Deseret.

Response: See Oral Testimony Response 35 regarding cumulative impact analysis.

The analysis of the towns's ability to provide services was based on capacity information for the community servies obtained from city officials and comparisons with popultion numbers projected in table 4-12, 4-14, 4-24, and 4-26, which include cumulative population impact.

BLM and REA encourage the Town of Rangely and Deseret to come to a mutual agreement pertaining to impact mitigation. Such an agreement would benefit both the Town of Rangely and Deseret.

Comment 37: Peggy Rector

...Summary and Conclusion: (1) The socioeconomic analysis of the Draft EIS is not in many ways satisfactory. We find it lacking in a current and future state economic and social analysis. As a matter of fact, very little is said about social change that Deseret will bring. Virtually nothing is said about solutions; which is, perhaps, its worst shortcoming.

Response: The EIS is intended to analyze the public concerns and, based on the nature and number of the comments, make a determination on the level of detail needed for suitable EIS coverage. It is not intended to be an encyclopedic report. Social changes are analyzed on pages 296 to 298 in the Draft EIS and general mitigation measures proposed by Deseret can be found in Appendix 11 of this Final EIS.

As noted in numerous responses to comments on the Draft EIS, many of the potential solutions (particularly in the realm of socioeconomics) are logically and legally the perview of state and local authorities. The EIS identifies overall problems and needs, but unless agreements have been reached between Deseret and local officials, the EIS cannot reflect detailed socioeconomic mitigation solutions. Mitigation must be "real and committed" by those with authority for implementation. Otherwise, the EIS presents a "worst-case" analysis, on which further mitigation planning can be keyed.

Comment 38: Peggy Rector

...It is apparent that the data was prepared in isolation of the units of local government affected.

Response: From their earliest involvement in this project, the staff socioeconomic specialists have been in contact with representatives of the Town of Rangely, Rio Blanco County, Colorado West Area Association of Governments, City of Vernal, Uintah County, and Uintah Basin Association of Governments seeking constructive input to make the Draft EIS accurate and acceptable to them. Several reviewers of the data have presented complaints, but little sound, factual data has been submitted.

This contact has been in the form of meetings, phone conversations, and letters soliciting specific comments and specific data to correct any errors or misstatements in the socioeconomic sections.

BLM believes that ample effort was attempted to obtain data from and coordinate with local governments on this matter.

Comment 39: Peggy Rector

...(2) We believe certain baseline and statistical data is lacking in the Draft EIS. We made particular comments regarding desired information in the areas of population, housing, costs/revenue data, and cumulative impacts on the town. We believe this should be completed and made part of the Final EIS. Otherwise, the document would have serious shortcomings.

Response: All comments and data provided to the BLM by impacted local government entities were used in preparing the Draft and Final EIS. The particular items listed in the comment are discussed in the Draft EIS and are addressed in greater detail in numerous responses to portions of Comment Letter 36.

Comment Letter 1

United States Department of the Interior
FISH AND WILDLIFE SERVICE
AREA OFFICE COLORADO–UTAH
1311 FEDERAL BUILDING
125 SOUTH STATE STREET
SALT LAKE CITY, UTAH 84138

IN REPLY REFER TO: (ES)

February 4, 1981

MEMORANDUM

TO: Greg Thayn, Team Leader
Bureau of Land Management
University Club Building
136 East South Temple
Salt Lake City, Utah 84111

FROM: Acting Area Manager
Area 5
Salt Lake City, Utah

SUBJECT: Review of Draft Environmental Statement - Moon Lake Power Plant Project Units 1 and 2 (EC-80/4)

General Comments:

We have reviewed the subject draft and find that in general it adequately describes existing conditions and impacts likely to occur with construction and operation of the proposed project.

1.1 On December 11, 1980 we transmitted our Fish and Wildlife Coordination Act (FWCA) report to your State Director. We find little or no verbage in the subject draft reflective of our analysis of impacts nor is our report included in the DEIS appendices. Because of its significance to the planning process, we believe it should be included and appropriately referenced. Conclusions drawn and recommendations made in our FWCA report were the result of coordinated efforts between our agency, the Colorado Division of Wildlife and the Utah Division of Wildlife Resources and as such are important.

Specific Comments:

1.2 Page 181 Paragraph 3 line one: Ouray is on the Duchesne not the White River.

1.3 Page 259 Paragraph 1 last line: We do not agree that operation of the railroad would not result in the loss of deer. Regardless of their low population density and the speed of the train, the potential still exists for deer-train collisions, particularly in Colorado. However small, a potential impact does exist for deer and antelope. (See Page 12 FWCA report).

Comment Letter 1

Page 2

1.4 Page 260 Raptors: In our view the potential abandonment of a golden eagle and/or ferruginous hawk nests is worthy of special consideration. If, as stated in the DEIS, many other raptor species are found throughout the project area abandonment could result in the nesting pairs being driven out of the area by competing birds with the resulting failure to produce young. The cessation of heavy construction activities during the critical courtship and egg incubation phase would minimize disturbance and likely eliminate this potential impact. Golden eagles begin their courtship flights in late February and lay eggs in early March. Incubation of one or two eggs lasts approximately 42 days and hatch by mid April. Ferruginous hawks begin courtship flights in late February and lay 3 to 5 eggs in early March. Incubation lasts for 28-35 days and generally hatch by the first week in April. (See item 3, page 14 FWCA report).

1.5 Please find attached a copy of our earlier comments relative to the power line crossing of Ouray National Wildlife Refuge.

Overall the subject document is well written, easily understood, and provides the reader an appreciation of major impacts likely to occur with construction and operation of the proposed project.

Thank you for providing us an opportunity to review and comment on this draft. We look forward to working with you toward finalizing an appropriate wildlife mitigation plan.

Sincerely yours,

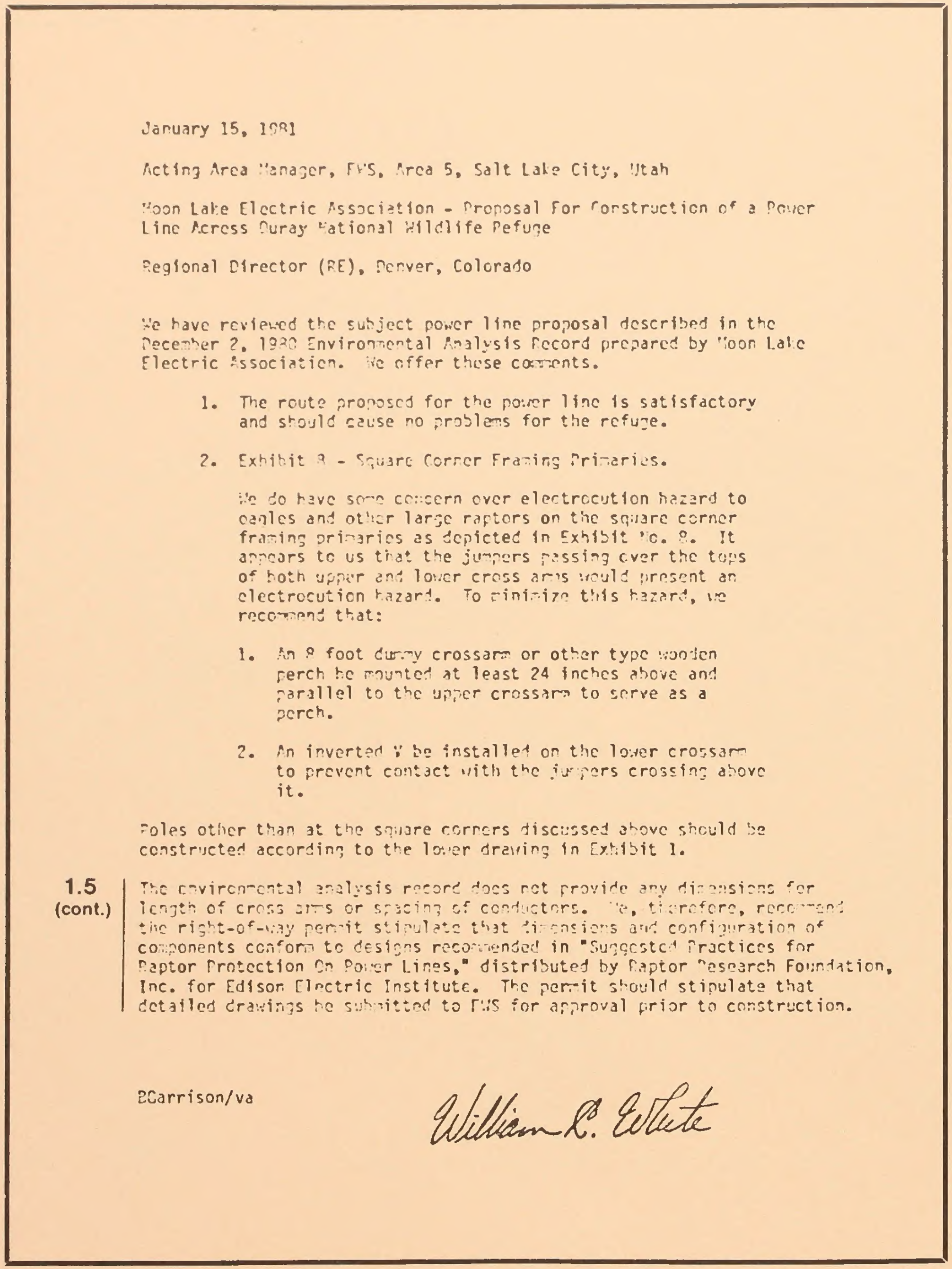
William C. White

Acting Area Manager

Attachment

cc: RO (ENV) - Denver
Colorado Division of Wildlife - Denver
Utah Division of Wildlife Resources - Salt Lake City, Utah

Comment Letter 1



January 15, 1981

Acting Area Manager, FWS, Area 5, Salt Lake City, Utah

Moon Lake Electric Association - Proposal For Construction of a Power Line Across Ouray National Wildlife Refuge

Regional Director (RE), Denver, Colorado

We have reviewed the subject power line proposal described in the December 2, 1980 Environmental Analysis Record prepared by Moon Lake Electric Association. We offer these comments.

1. The route proposed for the power line is satisfactory and should cause no problems for the refuge.

2. Exhibit 8 - Square Corner Framing Primaries.

   We do have some concern over electrocution hazard to eagles and other large raptors on the square corner framing primaries as depicted in Exhibit No. 8. It appears to us that the jumpers passing over the tops of both upper and lower cross arms would present an electrocution hazard. To minimize this hazard, we recommend that:

   1. An 8 foot dummy crossarm or other type wooden perch be mounted at least 24 inches above and parallel to the upper crossarm to serve as a perch.

   2. An inverted V be installed on the lower crossarm to prevent contact with the jumpers crossing above it.

Poles other than at the square corners discussed above should be constructed according to the lower drawing in Exhibit 1.

1.5 (cont.) The environmental analysis record does not provide any dimensions for length of cross arms or spacing of conductors. We, therefore, recommend the right-of-way permit stipulate that dimensions and configuration of components conform to designs recommended in "Suggested Practices for Raptor Protection On Power Lines," distributed by Raptor Research Foundation, Inc. for Edison Electric Institute. The permit should stipulate that detailed drawings be submitted to FWS for approval prior to construction.

BGarrison/va

William R. White

Response Letter 1

1.1 The material contained in the first 9 1/2 pages of the USFWS Coordination Act report is a reiteration of Chapter 2 of the Draft EIS and, therefore, will not be reproduced in this Final EIS. However, pages 10 to 14 of the USFWS Coordination Report (Impacts and Recommendations) reflect the coordinated efforts of the agencies referred to and appears in Appendix 23 in this Final EIS.

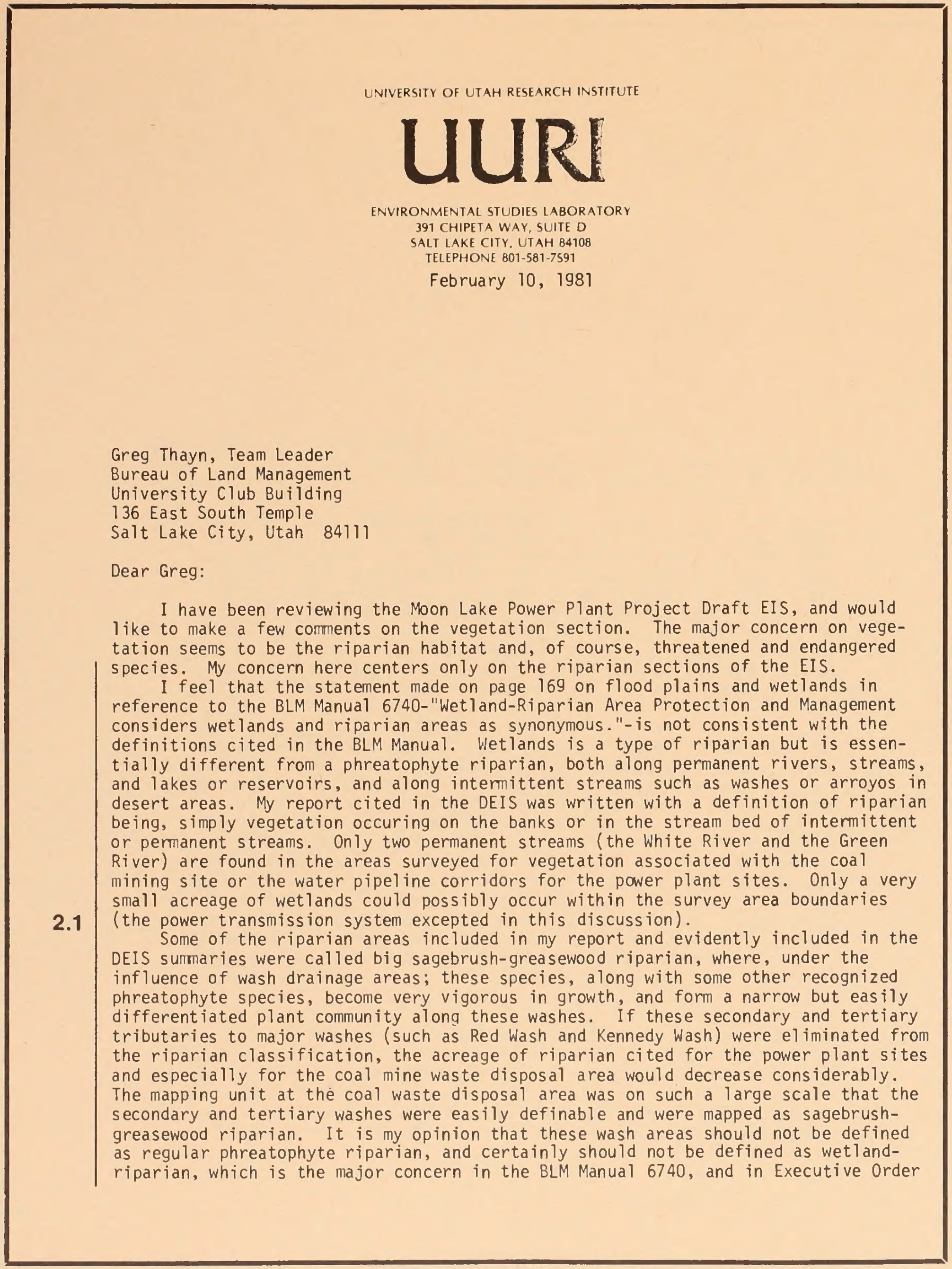
1.2 Ouray is located on the Duchesne River; however, the White River is also located near Ouray and was used as a reference point to designate where in the White River the razorback suckers were observed.

1.3 Potential impacts to deer and antelope from a railroad system were frequently discussed during the scoping process and writing of the EIS. The consensus of opinion was, that, if the railroad were to have an unfenced right-of-way, travel at low speed (34 to 40 mph) and only during daylight hours, there would not likely be any deer or antelope losses. It is recognized that there may always be exceptions; however, the analysis for this area indicates that losses would be negligible, if any.

1.4 Even though there are other raptors in the project area, the ferruginous hawk has a very wide and flexible range of potential sites in its nest selection process. The pair mentioned would very likely be able to renest in the immediate vicinity.

The golden eagle is worthy of special consideration and would be protected by measure No. 11 mentioned on page 323 of the Draft EIS. The golden eagle is also protected under the Bald Eagle Protection Act. The Draft EIS also states on page 318 that, "All mitigating measures.... could be modified... in cooperation with responsible state agencies." If the Colorado Division of Wildlife (CDW) deemed it necessary to curtail construction activities during the critical period you mention, the appropriate Federal official could so stipulate. See also page 117, number "f".

1.5 Thank you for your comment. This information will be taken into consideration in the formulation of right-of-way permit stipulations. Please refer to standard measure "t" on page 120 of the Draft EIS which states, "All power transmission lines would be designed to prevent electrocution of raptors." Also note on page 116 of the Draft EIS that, "These measures are general guidelines for mitigation and may be altered by the appropriate Federal official to meet site specific needs."



UNIVERSITY OF UTAH RESEARCH INSTITUTE
UURI
ENVIRONMENTAL STUDIES LABORATORY
391 CHIPETA WAY, SUITE D
SALT LAKE CITY, UTAH 84108
TELEPHONE 801-581-7591

February 10, 1981

Greg Thayn, Team Leader
Bureau of Land Management
University Club Building
136 East South Temple
Salt Lake City, Utah 84111

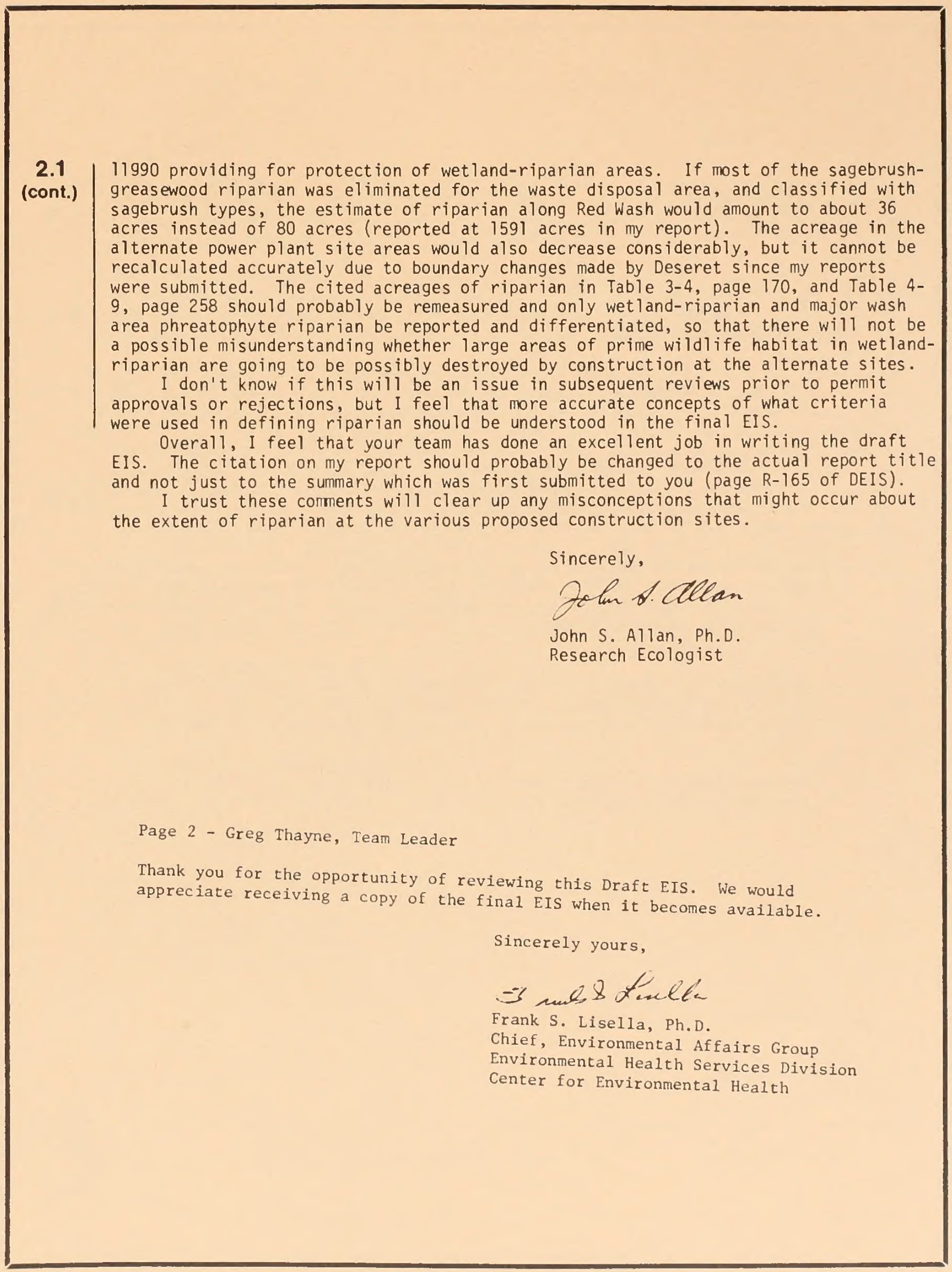
Dear Greg:

I have been reviewing the Moon Lake Power Plant Project Draft EIS, and would like to make a few comments on the vegetation section. The major concern on vegetation seems to be the riparian habitat and, of course, threatened and endangered species. My concern here centers only on the riparian sections of the EIS.

2.1

I feel that the statement made on page 169 on flood plains and wetlands in reference to the BLM Manual 6740-"Wetland-Riparian Area Protection and Management considers wetlands and riparian areas as synonymous."-is not consistent with the definitions cited in the BLM Manual. Wetlands is a type of riparian but is essentially different from a phreatophyte riparian, both along permanent rivers, streams, and lakes or reservoirs, and along intermittent streams such as washes or arroyos in desert areas. My report cited in the DEIS was written with a definition of riparian being, simply vegetation occuring on the banks or in the stream bed of intermittent or permanent streams. Only two permanent streams (the White River and the Green River) are found in the areas surveyed for vegetation associated with the coal mining site or the water pipeline corridors for the power plant sites. Only a very small acreage of wetlands could possibly occur within the survey area boundaries (the power transmission system excepted in this discussion).

Some of the riparian areas included in my report and evidently included in the DEIS summaries were called big sagebrush-greasewood riparian, where, under the influence of wash drainage areas; these species, along with some other recognized phreatophyte species, become very vigorous in growth, and form a narrow but easily differentiated plant community along these washes. If these secondary and tertiary tributaries to major washes (such as Red Wash and Kennedy Wash) were eliminated from the riparian classification, the acreage of riparian cited for the power plant sites and especially for the coal mine waste disposal area would decrease considerably. The mapping unit at the coal waste disposal area was on such a large scale that the secondary and tertiary washes were easily definable and were mapped as sagebrush-greasewood riparian. It is my opinion that these wash areas should not be defined as regular phreatophyte riparian, and certainly should not be defined as wetland-riparian, which is the major concern in the BLM Manual 6740, and in Executive Order



2.1 (cont.)

11990 providing for protection of wetland-riparian areas. If most of the sagebrush-greasewood riparian was eliminated for the waste disposal area, and classified with sagebrush types, the estimate of riparian along Red Wash would amount to about 36 acres instead of 80 acres (reported at 1591 acres in my report). The acreage in the alternate power plant site areas would also decrease considerably, but it cannot be recalculated accurately due to boundary changes made by Deseret since my reports were submitted. The cited acreages of riparian in Table 3-4, page 170, and Table 4-9, page 258 should probably be remeasured and only wetland-riparian and major wash area phreatophyte riparian be reported and differentiated, so that there will not be a possible misunderstanding whether large areas of prime wildlife habitat in wetland-riparian are going to be possibly destroyed by construction at the alternate sites.

I don't know if this will be an issue in subsequent reviews prior to permit approvals or rejections, but I feel that more accurate concepts of what criteria were used in defining riparian should be understood in the final EIS.

Overall, I feel that your team has done an excellent job in writing the draft EIS. The citation on my report should probably be changed to the actual report title and not just to the summary which was first submitted to you (page R-165 of DEIS).

I trust these comments will clear up any misconceptions that might occur about the extent of riparian at the various proposed construction sites.

Sincerely,

John S. Allan

John S. Allan, Ph.D.
Research Ecologist

Page 2 - Greg Thayne, Team Leader

Thank you for the opportunity of reviewing this Draft EIS. We would appreciate receiving a copy of the final EIS when it becomes available.

Sincerely yours,

Frank S. Lisella, Ph.D.
Chief, Environmental Affairs Group
Environmental Health Services Division
Center for Environmental Health

Response Letter 2

2.1 The section referred to, "Floodplains and Wetlands", page 169 of the Draft EIS, is in error by stating that BLM Manual 6740 considers wetlands and riparian areas as synonymous.

More correctly, BLM Manual 6740 establishes policy and procedures for identification, protection, maintenance, enhancement, and management of these areas. Riparian and wetland areas are defined as follows by Manual Section 6740.

> riparian habitat: A specialized form of wetland restricted to areas along, adjacent to, or contiguous with perennially and intermittently flowing rivers and streams, also, periodically, flooded lake and reservoir shore areas, as well as lakes with stable water levels with characteristic vegetation. This habitat is transitional between true bottom land wetlands and upland terrestrial habitats and, while associated with water courses, may extend inland for considerable distances. Soils of the riparian habitat may not exhibit typical wet soil characteristics of other wetlands. If not, wet soil characteristics will exist close enough to the surface for the water to be used directly by vegetation. This vegetation may range from water-loving hydrophytes (such as pond weeds) through terrestrial forms (such as sycamores, cottonwoods, and willows).

> wetland or wetland habitat: Permanently wet or intermittently flooded areas where the water table (fresh, saline, or brackish) is at, near, or above the soil surface for extended intervals, where hydric wet soil conditions are normally exhibited, and where water depths generally do not exceed 2 meters. Vegetation is generally comprised of emergent water-loving forms (hydrophytes) which require at least a periodically saturated soil condition for growth and reproduction. In certain instances vegetation may be completely lacking. Marshes, shallows, swamps, muskegs, lake bogs, and wet meadows are examples of wetlands.

The text has been changed to reflect this information. See the revised Chapter 3 "Floodplains and Wetland" section of "Plant Site and Raw Material Supply Systems" in this Final EIS.

Comment Letter 3

DEPARTMENT OF HEALTH & HUMAN SERVICES
Public Health Service

Centers for Disease Control
Atlanta, Georgia 30333
(404) 262-6649

February 11, 1981

Greg Thayne, Team Leader
Bureau of Land Management
University Club Building
136 East South Temple
Salt Lake City, Utah 84111

Dear Mr. Thayne:

We have completed our review of the Draft Environmental Impact Statement (EIS) for Moon Lake Power Plant Project Units 1 and 2. We are responding on behalf of the Public Health Service.

3.1 A statement should be made in the final EIS concerning anticipated air pollution levels that may be created by construction activities for this project. This statement should include pollution levels from equipment as well as construction dust.

3.2 The final EIS should state whether or not vegetation control measures are anticipated along any of the transmission line routes. The types of chemical treatment that may be used, the quantities of chemicals and their application rates, and the application methods proposed should be stated.

3.3 The potential vector control problems from the raw water storage pond should be addressed. A description is needed of potential vector populations, potential health threats, proposed control measures that may be needed, anticipated kinds and volumes of pesticides, and proposed application procedures.

3.4 A statement should be included as to whether or not there are any human populations that will be displaced as a result of this project. If so, the mitigation measures should be delineated.

3.5 The final EIS should provide a description of the solid wastes disposal from the FGD system and the particulate control system. The draft EIS implies a landfill site, but does not elaborate on how the landfill site would be operated or monitored.

3.6 Although the Draft EIS mentions that ground water monitoring in the vicinity of the power plant will be required, a statement should be added to the Final EIS describing how this monitoring will be conducted at the power plant and the plant waste refuse disposal area.

Comment Letter 3

Page 2 - Greg Thayne, Team Leader

Thank you for the opportunity of reviewing this Draft EIS. We would appreciate receiving a copy of the final EIS when it becomes available.

Sincerely yours,

Frank S. Lisella, Ph.D.
Chief, Environmental Affairs Group
Environmental Health Services Division
Center for Environmental Health

Response Letter 3

3.1 The EPA informed BLM that no emission permits for construction-related activities would be required. Because there are no communities in the vicinity of the alternative sites, these low-level emissions were not considered significant and were not addressed in the Draft EIS.

3.2 Deseret has not proposed to use chemical treatment. Should Deseret desire to use chemical treatment, they would be required to obtain appropriate Federal and State permits. It is assumed that, if permit requirements are met, no significant impacts would result.

3.3 The raw water storage pond would be designed with steep banks so as to maintain water depths that would not be conducive to vector reproduction. Because of this and the fact that there would be constant cycling of the water in the pond, no problems with vector populations are expected.

3.4 There are no communities in the immediate vicinity of any of the alternative sites and no displacement of human populations is expected.

3.5 A solid waste disposal permit will be required by the affected state government. Details of operations and monitoring will be approved by the state agencies prior to issuance of the permit.

3.6 Monitoring will be controlled by the responsible state agencies and will be developed in conjunction with appropriate permitting processes. Permit applications have been or will be submitted by Deseret to the appropriate state agencies who will impose adequate ground water monitoring plans before issuance of permits.

Comment Letter 4

RIO BLANCO COUNTY
ROAD DEPARTMENT
MEEKER, COLORADO
81641

January 30, 1981

Colorado State Office
U. S. Bureau of Land Management
State Director (946)
Colorado State Bank Building
1600 Broadway
Denver, Colorado 81650

Gentlemen:

Reference is made to tentative plans of Western Fuels Utah's Deserado Mine Refuse Haul Road.

Ford, Bacon & Davis Utah Inc., the design firm retained by Western Fuels Utah, have provided us with a set of preliminary plans of the transportation system proposed for Deserado Mine.

4.1 Information from the design firm indicates that heavy hauling units on the refuse haul road will travel in an opposite pattern than the normal American custom of keeping to the right.

Approximately three miles of this refuse haul road follows the general alignment of an existing county road number 78 from its junction with county road number 65 in the E½ Section 33, T3N, R101W, 6th PM to a point near the N¼ Corner Section 26 of the same township and range.

It is proposed by Western Fuels Utah that the public use this section of haul road in conjunction with the heavy hauling units. We object to this practice in the interest of safety for the public users of this section of road. The danger of mixing heavy haul unit traffic with public use is compounded by the proposed use of lefthand traffic by all units

It is suggested that the two types of traffic be seperated by either rerouting the haul road or the county road so that complete seperation of the two types of traffic is maintained. It would be more cost effective to move the county road to a new location.

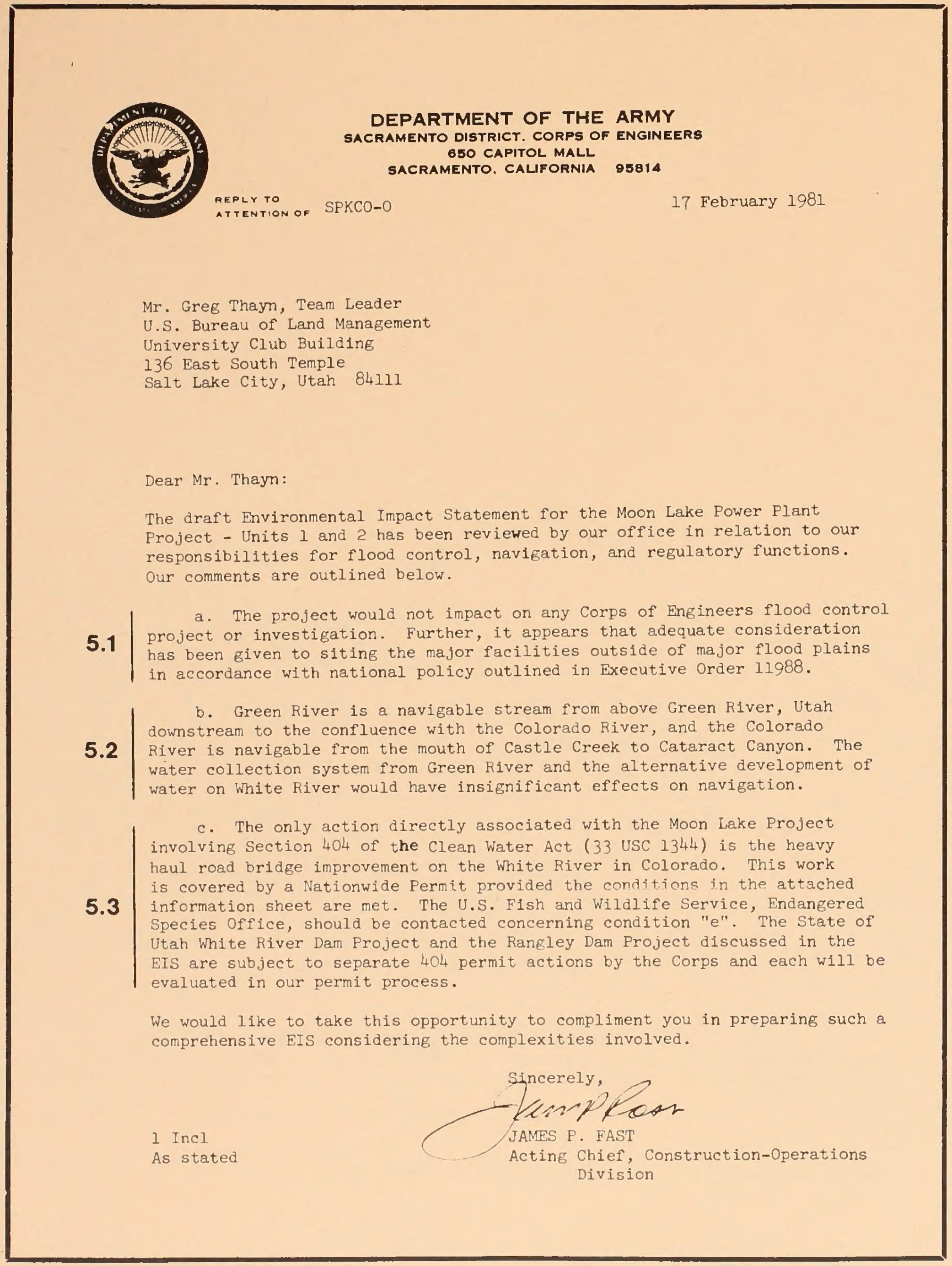
Very Truly Yours,

Walter Cook
Walter Cook
County Road Supervisor

Response Letter 4

4.1 This portion of the proposed action had not been brought to the attention of BLM. BLM concurs that the mixing of normal and left-hand refuse haul trucks would result in extreme safety hazards. The proposal of left-handed refuse haul traffic has been added to the "Coal Supply Alternatives" section of Chapter 2 and analyzed in the Transportation section of Chapter 4. Measure No. 4 of Specific Mitigating Actions of the Final EIS has been revised so that this situation would be alleviated.

Comment Letter 5



DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT. CORPS OF ENGINEERS
650 CAPITOL MALL
SACRAMENTO. CALIFORNIA 95814

REPLY TO ATTENTION OF SPKCO-O

17 February 1981

Mr. Greg Thayn, Team Leader
U.S. Bureau of Land Management
University Club Building
136 East South Temple
Salt Lake City, Utah 84111

Dear Mr. Thayn:

The draft Environmental Impact Statement for the Moon Lake Power Plant Project - Units 1 and 2 has been reviewed by our office in relation to our responsibilities for flood control, navigation, and regulatory functions. Our comments are outlined below.

5.1 a. The project would not impact on any Corps of Engineers flood control project or investigation. Further, it appears that adequate consideration has been given to siting the major facilities outside of major flood plains in accordance with national policy outlined in Executive Order 11988.

5.2 b. Green River is a navigable stream from above Green River, Utah downstream to the confluence with the Colorado River, and the Colorado River is navigable from the mouth of Castle Creek to Cataract Canyon. The water collection system from Green River and the alternative development of water on White River would have insignificant effects on navigation.

5.3 c. The only action directly associated with the Moon Lake Project involving Section 404 of the Clean Water Act (33 USC 1344) is the heavy haul road bridge improvement on the White River in Colorado. This work is covered by a Nationwide Permit provided the conditions in the attached information sheet are met. The U.S. Fish and Wildlife Service, Endangered Species Office, should be contacted concerning condition "e". The State of Utah White River Dam Project and the Rangley Dam Project discussed in the EIS are subject to separate 404 permit actions by the Corps and each will be evaluated in our permit process.

We would like to take this opportunity to compliment you in preparing such a comprehensive EIS considering the complexities involved.

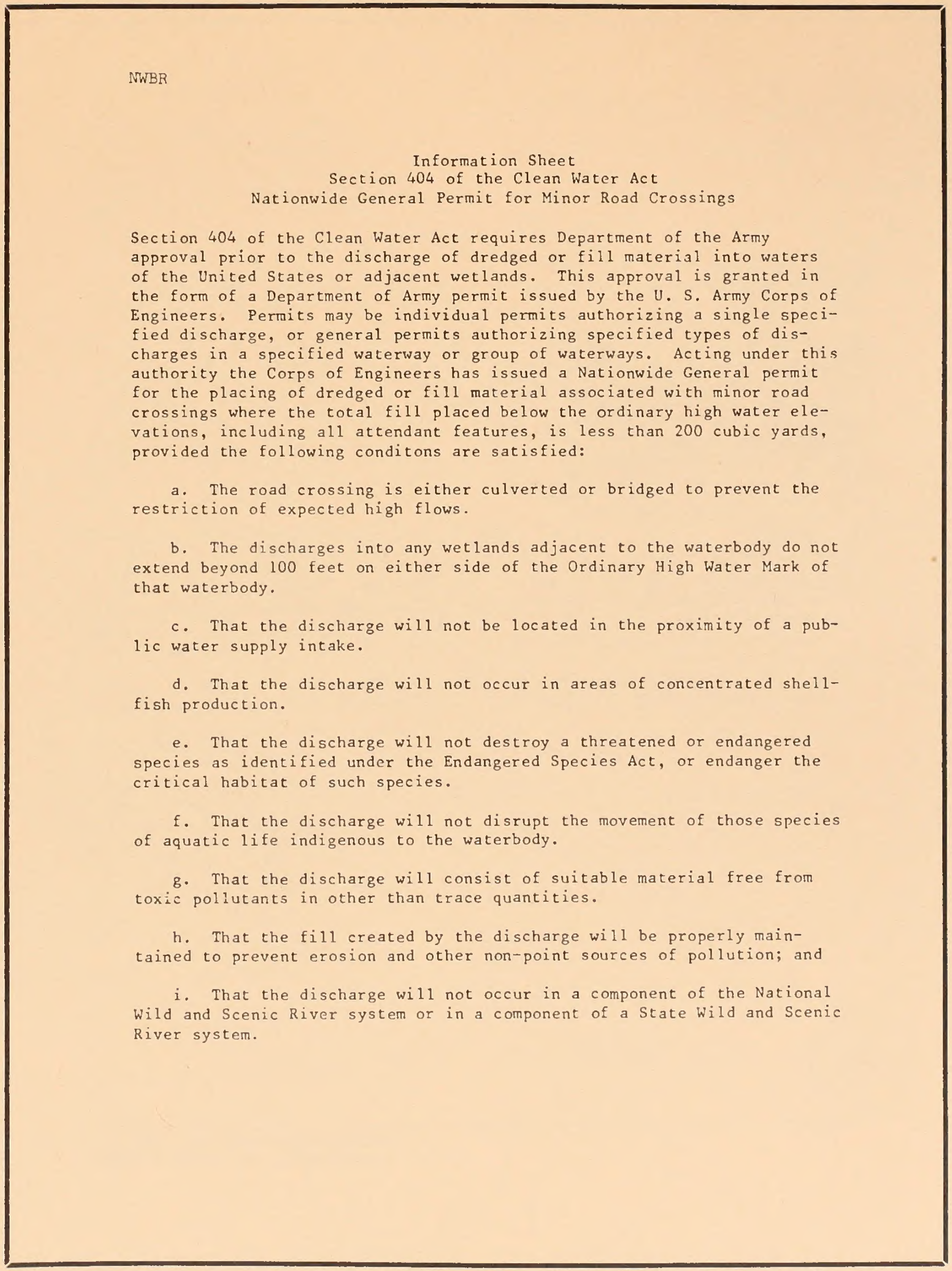
Sincerely,

James P. Fast

JAMES P. FAST
Acting Chief, Construction-Operations
Division

1 Incl
As stated

Comment Letter 5



NWBR

Information Sheet
Section 404 of the Clean Water Act
Nationwide General Permit for Minor Road Crossings

Section 404 of the Clean Water Act requires Department of the Army approval prior to the discharge of dredged or fill material into waters of the United States or adjacent wetlands. This approval is granted in the form of a Department of Army permit issued by the U. S. Army Corps of Engineers. Permits may be individual permits authorizing a single specified discharge, or general permits authorizing specified types of discharges in a specified waterway or group of waterways. Acting under this authority the Corps of Engineers has issued a Nationwide General permit for the placing of dredged or fill material associated with minor road crossings where the total fill placed below the ordinary high water elevations, including all attendant features, is less than 200 cubic yards, provided the following conditons are satisfied:

a. The road crossing is either culverted or bridged to prevent the restriction of expected high flows.

b. The discharges into any wetlands adjacent to the waterbody do not extend beyond 100 feet on either side of the Ordinary High Water Mark of that waterbody.

c. That the discharge will not be located in the proximity of a public water supply intake.

d. That the discharge will not occur in areas of concentrated shellfish production.

e. That the discharge will not destroy a threatened or endangered species as identified under the Endangered Species Act, or endanger the critical habitat of such species.

f. That the discharge will not disrupt the movement of those species of aquatic life indigenous to the waterbody.

g. That the discharge will consist of suitable material free from toxic pollutants in other than trace quantities.

h. That the fill created by the discharge will be properly maintained to prevent erosion and other non-point sources of pollution; and

i. That the discharge will not occur in a component of the National Wild and Scenic River system or in a component of a State Wild and Scenic River system.

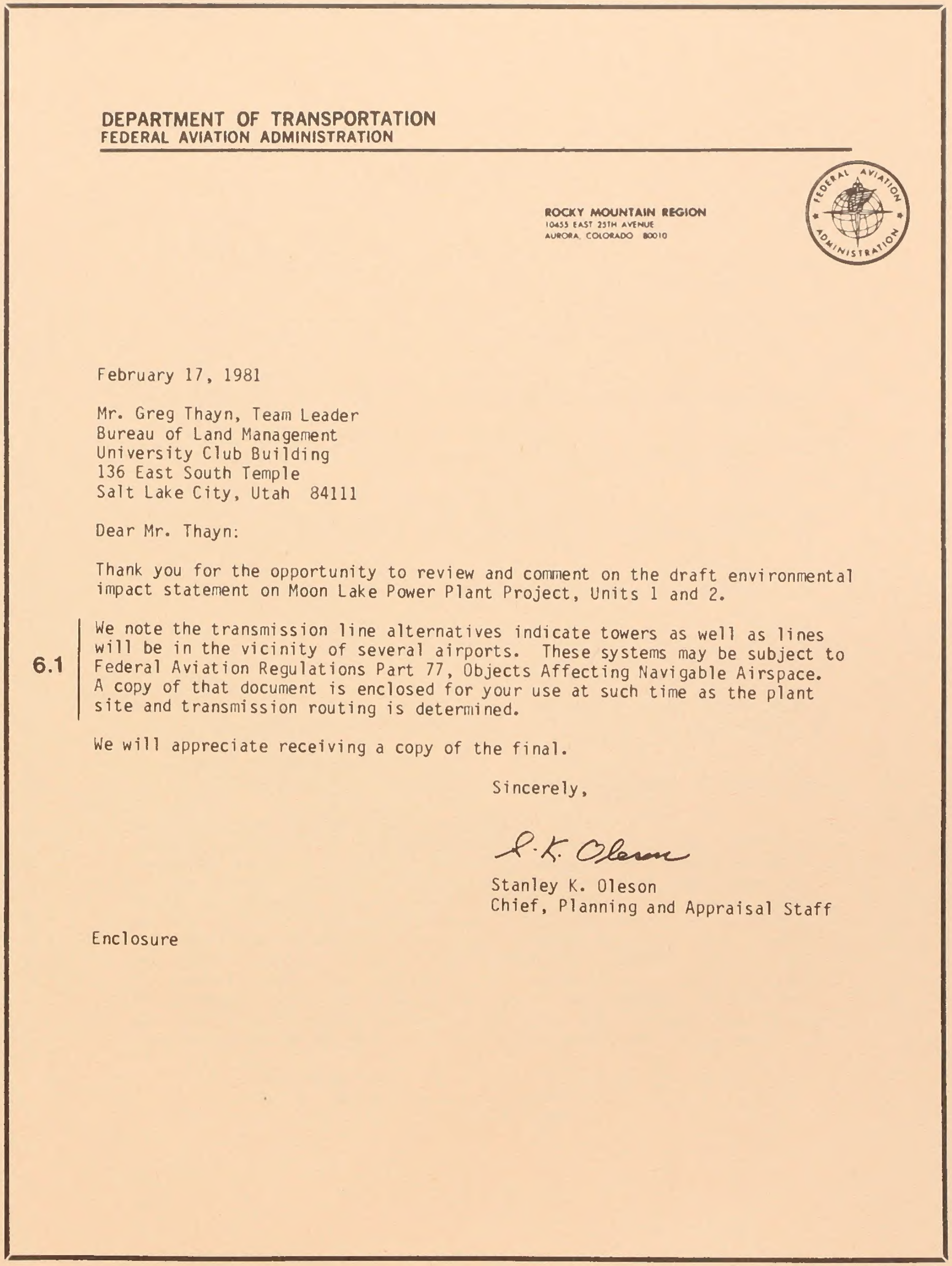
Response Letter 5

5.1 Thank you for your comment. This information will be considered in the decision-making process.

5.2 The information in the comment is noted.

5.3 The information in the comment has been brought to the attention of the various project sponsors so that they can make direct contact with the Corps of Engineers regarding the 404 permit requirements.

Comment Letter 6



DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

ROCKY MOUNTAIN REGION
10455 EAST 25TH AVENUE
AURORA, COLORADO 80010

February 17, 1981

Mr. Greg Thayn, Team Leader
Bureau of Land Management
University Club Building
136 East South Temple
Salt Lake City, Utah 84111

Dear Mr. Thayn:

Thank you for the opportunity to review and comment on the draft environmental impact statement on Moon Lake Power Plant Project, Units 1 and 2.

6.1 We note the transmission line alternatives indicate towers as well as lines will be in the vicinity of several airports. These systems may be subject to Federal Aviation Regulations Part 77, Objects Affecting Navigable Airspace. A copy of that document is enclosed for your use at such time as the plant site and transmission routing is determined.

We will appreciate receiving a copy of the final.

Sincerely,

S. K. Oleson

Stanley K. Oleson
Chief, Planning and Appraisal Staff

Enclosure

Response Letter 6

6.1 Thank you for your comment. This information will be used in determining the final location of the transmission system should the project be approved.

Comment Letter 7

Uintah Basin Association
of Governments
P. O. BOX 1449 (801) 722-4518
ROOSEVELT, UTAH 84066

February 17, 1981

Mr. Greg Thayn, Team Leader
Bureau of Land Management
University Club Building
136 East, South Temple
Salt Lake City, Utah 84111

Dear Greg,

The Uintah Basin Association of Governments would like to comment on the Moon Lake Power Plant Project draft EIS.

First of all, we enthusiastically support the construction and operation of the project at the preferred site. It would provide jobs and income to the local economy and an important tax base supplement to the local governments. In addition, we view the project as essential to provide power to the synfuels development that is scheduled to begin soon. While some of the more tentative projects may not materialize because of the new administration's approach to synfuels development, Geokinetics, White River Oil Shale, TOSCO, and Paraho are continuing development plans. The plans rely heavily on the Moon Lake Project for electrical power.

7.1 We would like to comment on the socioeconomic portion of the EIS. Generally, the housing and socioeconomic conditions reported for the existing communities are correct. The problem of high interest rates and a strong demand for available capital in the housing market will undoubtedly result in an increase in mobile homes. May we point out that Deseret Generation and Transmission Cooperative has purchased a parcel of land for use as a mobile home park and intends to provide housing for the construction force. Deseret G and T has also provided the school district with $1.5 million for construction of a new school. Both efforts are commendable on the part of the power company.

7.2 The schedule of cumulative impacts on page 299 is partly out of date. We have enclosed an updated construction schedule of projects in Utah.

7.3 We are concerned about the social ills that are alluded to on page 298. The concern is specifically one of extent. How many of and to what degree should we expect to experience the social ills are questions we would like to have answered. We would suggest that the EIS go into more detail in this area.

We appreciate the opportunity to comment on the EIS document.

Sincerely,

George Roth

George Roth
Executive Director

Enclosure
RG/aj

Jan. 20, 1981

TABLE A-1

Operation and Construction Workforce for Oil Shale and Related Projects

		1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
WHITE RIVER SHALE Project	Const	100	400	1200	300		50	1500	3650	3400	2450	2450	1350			
	Oper	100	200	220	225	780	780	830	1200	1650	2150	2250	2550	2900	3100	3100
TOSCO	Const		30	30		500	1200	2010	2500	3075	2000	1000	500			
	Oper				5	5	5	200	630	950	1260	1260	1260	1260	1260	1260
PARAHO	Const		500	800	1100	800	800	600								
	Oper			200	200	200	520	520	520	520	520	520	520	520	520	520
DESERET G. & T.																
Power Unit #1	Const	100	300	600	800	400										
Unit #2	Const			100	300	600	800	400								
Unit #1-2	Oper						80	80	140	140	140	140	140	140	140	140
GEOKINETICS	Oper	40	50	50	100	250	300	350	400	450	500	500	500	500	500	500
WHITE RIVER DAM	Const			50	300	200										
	Oper				10	10	10	10	10	10	10	10	10	10	10	10
SYNTANA (figures not avail)																
MAGIC CIRCLE (figures not avail)																
Construction		200	1230	2780	2800	2500	2850	4510	6150	6475	4450	3450	1850			
Operation		140	250	470	540	1245	1695	1930	2900	3720	4580	4680	4980	5330	5530	5530
Grand Total		340	1480	3250	3340	3745	4545	6500	9050	10,195	9030	8130	6830	5330	5530	5530

Source: Uintah Basin Energy Planning & Development Council

Response Letter 7

7.1 Thank you for your comment. This information has been added to Appendix 11, Deseret's Proposed Mitigation of Project-Induced Socioeconomic Impacts, of this Final EIS.

7.2 The new data has been incorporated into Chapter 4, table 4-35 of this Final EIS.

7.3 The public attitudes and quality of life indicators projected on page 298 of the Draft EIS were forecasted from similar communities having experiences with energy project impacts. It is generally recognized that indepth quantification of these social problems cannot be forecasted with validity. A discussion of the state-of-the-art of this type of research can be found in the Western Sociological Review (Cortese and Jones, 1977). It should also be remembered that the Moon Lake power plant project, by itself, would not result in a boomtown scenario caused by a massive population influx, and that the region already has experienced energy-related growth. See also page 200 of the Draft EIS, "Quality of Life Indicators".

Comment Letter 8

P.O. Box 24732
Vancouver, B.C.
CANADA V5T 4E1
February 18, 1981

MOON LAKE POWER PLANT PROJECT
The Bureau of Land Management
Salt Lake City, Utah

Dear Sirs:

I have read the Draft Environmental Impact Statement (E.I.S.) for the Moon Lake Project which proposes a coal-fired power plant to be situated northwest of Bonanza, Utah, with "large-scale" water to be piped 19 miles from the Green River, 2.7 million tons of coal per year mostly from Deserado Mine, Colorado and hundreds of miles of new transmission lines.

8.1 I ask: who wants these coal-fired power plants? Is it the local people of the area (Unitah County, Utah and Rio Blanco County, Colo.)? I don't know-- maybe they do. But I do read in the Draft E.I.S. that over 70% of the power is earmarked for large and small (mostly large!) commercial-industrial use (Table 1-6, p.22). Hardly for people/residential use, this power instead appears to me to be created for the use of oil wells, oil shale projects, development of Alton or Kaiparowits coal fields, mining and other industries (pps. 18,23,108).

Valid or not, I won't argue-- but let's do call this for what it is! In the first place, the local rural people probably each generate a lot of their own power themselves. Secondly, they perhaps never expected to have outside power supplied to every far-out place, and certainly not if that would involve a big, dirty coal-fired power plant in their midst! Of course, the local town and small-city folk may be something else, with their residential and other personal conservation efforts being largely voluntary and attitudes ranging from lack of "care" (?) to hostility to "infringements" on their personal freedom (to be wasteful?)(p.18,109). Is this a case of "to hell with the rural land" for the benefit of newly-arriving urban town-folk and industrial developers? So please do describe this Power Project more clearly for what it is-- regional (industrial) development and urbanization.

8.2 Thus, my major criticism: your E.I.S. team never even attempted to ascertain the attitudes of the local rural population, the very ones who have lived on and used the land--"their" land--for generations. Try to include at least a rough survey in future such E.I.S.s, you might be surprised at what you uncover.

8.3 Also, you mention as "unresolved" certain aspects of air quality for this project (p.12). For answers, I invite you to observe the effects of the Gardiner power plant currently operating in Moapa Valley, Nev. (great for the air, no?).

- 2 -

8.3 (cont.) Also, the estimated Emission Rate of pollutants is not quite clear to me (Table 4-1, p.241). Rates are given in TONS/DAY. Is that really the magnitude of the situation, and with or without anti-pollution devices?? EPA's letter hoping for sustained 95% control efficiency of pollution removal is not very reassuring (p.R-3). If the plant is built and if 95% control could not be acheived, would we really expect to see orders issued to close the plant down?

8.4 And finally, Appendix 20: the Project's Energy & Cost Analysis, really has me amazed (p.R-133). In fact I wonder if I even read it right, or if all the figures were misprinted or something. To me, it says that to get 56,810 million BTU/year of coal to the generating plant, you will expend an even greater 57,500 million BTU/year of energy-effort to get it there (the man-hours, mining, dynamite, trucks, gas, pipes, wires, concrete, preparations and transportation)!?! Then, out of this 56,810 million BTU/year of coal, generation losses and transmission losses will account for 40,390 million BTU/year which results in a net electrical output of only 16,416 million BTU/year (30% efficiency)!?! Correct? Typical of coal-fired power plants? Typical of things industrial, generally?? Typical of an insane effort to insanely destroy the air and the land to insanely go insane destroying ourselves?

So sure, go ahead-- let's "develope" (i.e., foul, pollute, exploit and destroy) another quiet corner of rural Utah and Colorado. Attack the Green and White Rivers, foul the view from Dinosaur Nat'l Monument (Utah's State government doesn't seem to care for it--p.247), string more power lines all over the place, bring in more and more people, for do most of us care? Are Salt Lake City and Denver (or Phoenix or L.A. or Las Vegas or Dallas or Houston or...) to be the examples of the quality of life that sacrifice of quiet rural land to "development" brings? We as a nation are not living with much concern for our grandchildren, are we?

Sadly yours,

Elliott Bernshaw

Elliott Bernshaw
A concerned U.S. citizen and
former resident of the SW.

8.1 Public meetings were held in Salt Lake City, Utah; Vernal, Utah; and Rangely, Colorado subsequent to the publication of the Oraft EIS. Most of the local people from Uintah County, Utah, and Rio Blanco County, Colorado, who commented at these meetings indicated they felt the project is needed and will be acceptable in their areas providing suitable mitigation is developed for socioeconomic effects.

The six cooperatives which constitute Oeseret serve in rural areas and have financed their electric systems with REA loans. They have utility responsibility to provide electric service to loads in their service areas. Historically, over half of the load supplied by these systems has been large commercial. This load allocation is predicted to continue into the future. Examination of table 1-6 will show these six systems also expect steady growth in the consumer classifications of residential, irrigation and small commercial. It is acknowledged that a large percentage of the capacity of the Moon Lake power plant is required to supply predicted industrial loads.

Moon Lake Electric Association, Inc., and Garkane Power Association, Inc., operate hydroelectric generating facilities which total 3.5 MW in capacity. This is hardly a significant amount when compared to their loads or Deseret's loads. Perhaps the commentor means on-premises generation by the statement "local rural people probably each generate a lot of their own power themselves." On-premises generating facilities proved unduly burdensome to the consumer and that is the reason many electric distribution cooperatives exist today. Mt. Wheeler Power Inc., is a perfect case in point. It was formed in the early 1960s because the rural consumers found on-premise generating units expensive, unreliable, and a nuisance to operate.

8.2 The attitudes and expectations of the project area population can be found in the Oraft EIS, pages 200-201. Part of this analysis includes the results of a survey conducted by Opinion Sampling Research Institute (1975) quantifying the choices between economic growth versus the existing lifestyles.

8.3 Some questions about air quality have been resolved since publication of the Oraft EIS, and air quality has been deleted from "Unresolved Issues" section in the Final EIS. EPA has issued a PSO permit for the Bonanza site.

Impacts from the Moon Lake project would not be as severe as for the Gardner plant for several reasons. The Gardner plant began operation in 1971. Since then, many advances have been made in air pollution control technology. The Gardner plant relies on wet scrubbing for particulate removal, whereas Moon Lake proposes to use a baghouse. The baghouse system would be capable of significantly higher particulate removal efficiencies (exceeding 99 percent) than the wet scrubber system installed at the Gardner Station.

Table 4-1, page 241 of the Oraft EIS, gives estimated emission rates with pollution control devices. Emission rates will be monitored, and corrective action taken if equipment guarantees are not met.

8.4 Tables A and B and Appendix Figure 1 in Appendix 20 of the this Final EIS show that coal with a Btu equivalent of 62,460 x 10^9 would be extracted from the Oeserado Mine each year. That coal would then be cleaned and prepared to the form and quality necessary for input to the generating plant boilers. This cleaning process would yield coal with a Btu equivalent of 56,810 X 10^9 (this equates to the 2.7-million tons required annually to operate two 400-MW generators). The cleaned coal would then be transported

Response Letter 8

8.4 (cont.) to the generating plant and burned to produce electricity with a Btu equivalent of 16,720 X 10^9. The electricity would be transmitted to substations for distribution to consumers. The net usable electricity at the substations would have a Btu equivalent of 16,416.5 X 10^9.

Each stage in the applicant-proposed system would require inputs of energy and materials with the Btu equivalents shown in Appendix Figure 1.

Deserado Mine Operations	484.9 X 10^9 Btu
Coal Preparation	1,282.9 X 10^9 Btu
Coal Transport	190.9 X 10^9 Btu
Total	1,958.7 X 10^9 Btu

Thus, the external inputs of energy and materials expended to provide coal to the generating plant would be the above total.

During the above processes, there would be losses in the form of unrecovered coal (50,080 X 10^9 Btu equivalent) and coal lost during the cleaning preparation process (5,650 X 10^9 Btu equivalent). Thus, to provide coal to the generating plant would involve energy and material expenditures of 1,958.7 x 10^9 Btu and losses of 56,730 X 10^9 Btu for a total of 57,688 X 10^9 Btu. These totals are forecasts based on available information and are representative of Western underground coal mine operations.

The generating plant would produce electricity with a Btu equivalent of 16,720 X 10^9 from the coal (56,810 X 10^9 Btu equivalent) and energy and material inputs of 587.3 X 10^9 Btu. Thus the efficiency would be approximately 30 percent as you state. Most of the 40,090 X 10^9 Btu lost during the generating process would be heat loss during operation of the cooling system. The proposed technology is state-of-the-art and typical of modern day coal-fired electrical generating plants.

Comment Letter 9

Feb. 19, 1981

Greg Thayn
Team Leader, BLM
University Club Bldg.
136 East South Temple
Salt Lake City, Utah 84111

Dear Mr. Thayn:

I am commenting on the Moon Lake Power Project. I believe that a combination of power purchases and agreements along with construction of one single plant at Rangely would best fit the needs for power and the need to properly use the resource. The Bonanza site would adversely impact the antelope in the area. The agency proposed alternative that routes the powerlines along existing cooridors is the best. Under no condition should the powerline proposal that crosses the Ashley be built until the question of wilderness on the Uintas is solved. The agencies are not in favor of this line. The routes through the Uinta Forest should follow the existing cooridors. If other alternatives are used, they would adversely impact wildlife and recreation in the area. Let me again reaffirm my support for the agency preferred routing alternative. **9.1**

The water resource in this area is critical. Water from Flaming Gorge should be used in the plant operation. The applicant already has water rights in the Flaming Gorge-Green River area. A no action alternative should be taken if the White River is going to be used for the plant. An integrated EIS should be done on the White River before its water is allocated. Since the White River is not the preferred water source, this should be no problem.

Thanks for the opportunity to comment.

Sincerely,

Gary Macfarlane
565 East 200 North
Pleasant Grove, Utah 84062

Response Letter 9

9.1 Thank you for your comment. This information will be considered in the decision-making process.

Comment Letter 10

ARNOLD & PORTER
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NORTON F. TENNILLE, JR.
DIRECT LINE: (303) 832-0424

February 20, 1981

Mr. Gregory F. Thayn
Team Leader
Bureau of Land Management
University Club Building
136 East South Temple
Salt Lake City, Utah 84111

Mr. Frank Bennett
Director
Power Supply Division
United States Department of
Agriculture -- REA
South Agriculture Building - Room 5831
Washington, D.C. 20250

Re: Moon Lake Power Plant Project --
Environmental Impact Statement

Gentlemen:

10.1 We are writing in behalf of the Rio Blanco Board of County Commissioners to confirm the formal request made at the hearing in Rangely, Colorado, on February 19, 1981 that the comment period on the Moon Lake Power Plant Project draft EIS be extended until Monday, March 9, 1981.

The proposed Moon Lake Power Plant Project is a highly controversial one because of the environmental and socioeconomic impacts which will be caused in Rio Blanco County by construction of the Project. The issues discussed in the EIS, such as water availability and socioeconomic impacts, are extremely complex and their treatment in the draft EIS totally inadequate. The Rio Blanco Board of County Commissioners, to fully protect the rights of its citizens, intends to file comprehensive comments on the draft EIS, pointing out its deficiencies and supplying

Comment Letter 10

Mr. Gregory F. Thayn
Mr. Frank Bennett
February 20, 1981
Page Two

relevant and accurate information which is critical to an informed decision by the agencies in question.

10.2 The regulations of the United States Department of the Interior establish a minimum 60-day time period as the norm for receiving comments on draft Environmental Impact Statements. See 45 Fed. Reg. 27541 at 27547 (April 23, 1980). If Rio Blanco County is to be able to present comments which fully address the numerous deficiencies in the statement, the full 60-day time period will be required. Neither the lead agencies nor the project proponents should be seriously prejudiced by extending this comment period by six days.

Thank you very much for your consideration of our request.

Respectfully yours,

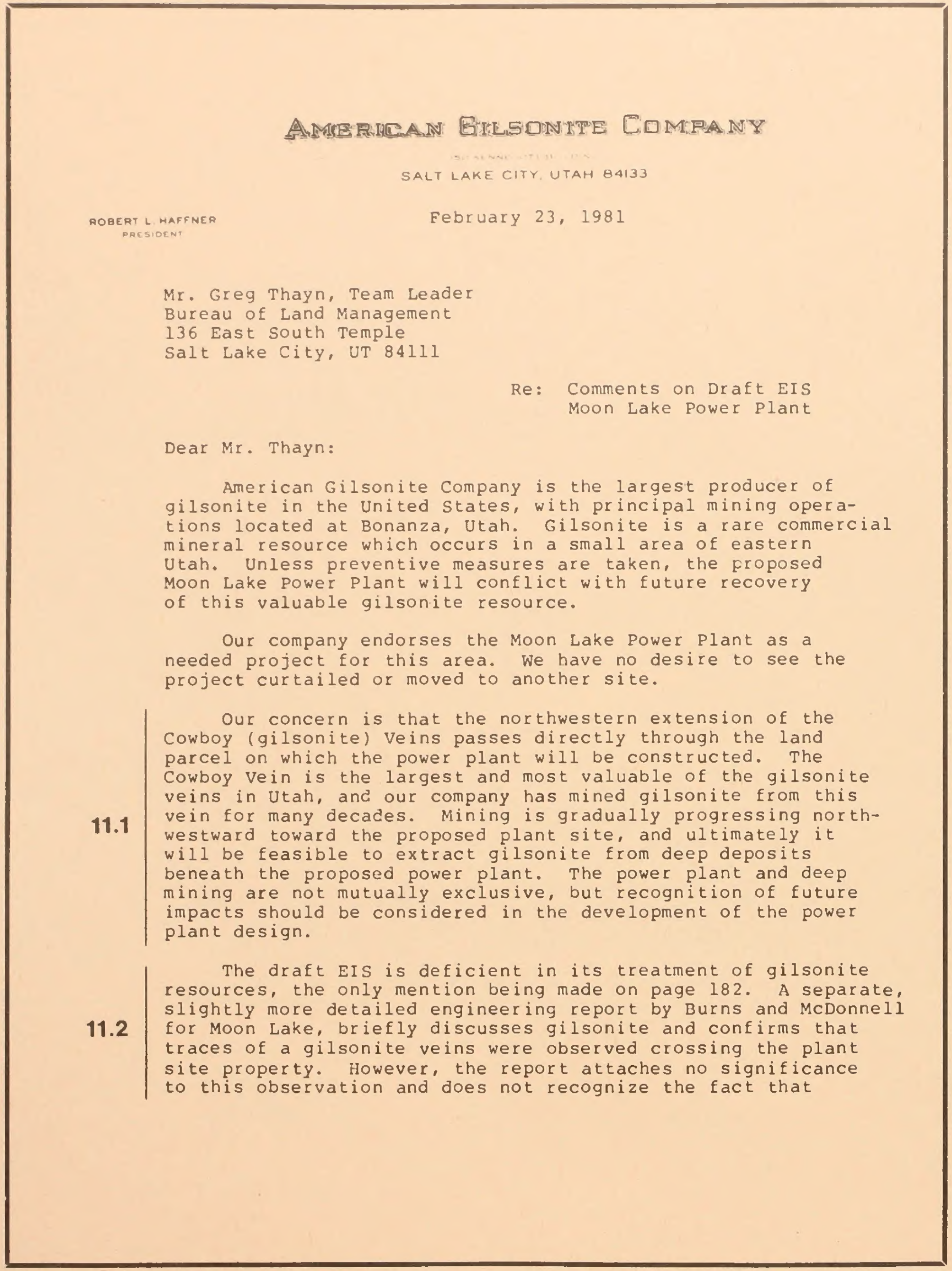
Norton F. Tennille, Jr.

cc: Rio Blanco Board of County Commissioners
Monte Pascoe, Esquire, Executive Director,
Colorado Department of Natural Resources
Ms. Paula Herzmark, Executive Director,
Colorado Department of Local Affairs
Joseph S. Zoller, Assistant Administrator
Rural Electrification Administration
Gary J. Weeks, Utah State Director of
Bureau of Land Management

Response Letter 10

10.1 See Oral Testimony Response 24.

10.2 See Oral Testimony Response 24.



AMERICAN GILSONITE COMPANY

SALT LAKE CITY, UTAH 84133

ROBERT L. HAFFNER
PRESIDENT

February 23, 1981

Mr. Greg Thayn, Team Leader
Bureau of Land Management
136 East South Temple
Salt Lake City, UT 84111

Re: Comments on Draft EIS
Moon Lake Power Plant

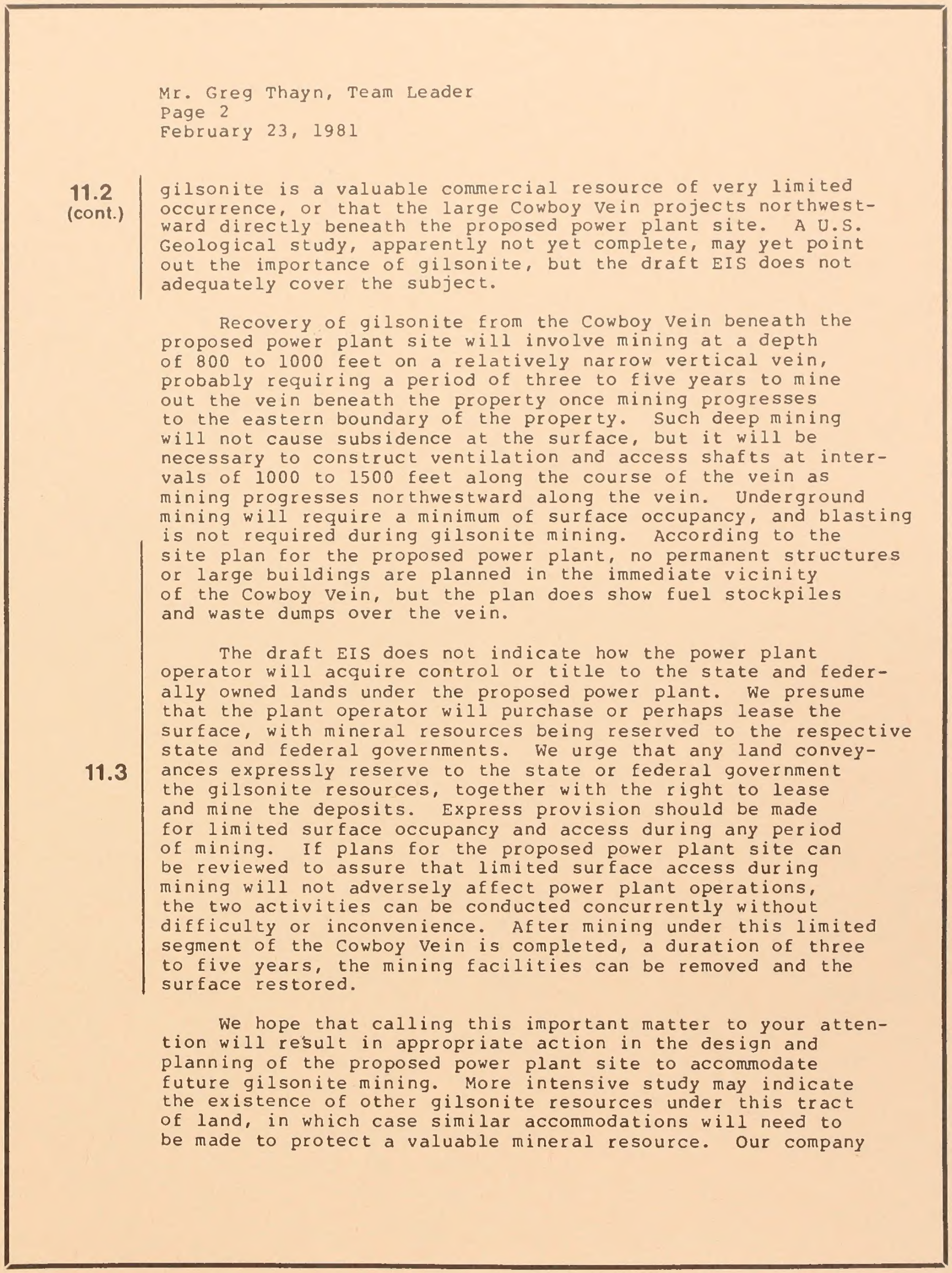
Dear Mr. Thayn:

American Gilsonite Company is the largest producer of gilsonite in the United States, with principal mining operations located at Bonanza, Utah. Gilsonite is a rare commercial mineral resource which occurs in a small area of eastern Utah. Unless preventive measures are taken, the proposed Moon Lake Power Plant will conflict with future recovery of this valuable gilsonite resource.

Our company endorses the Moon Lake Power Plant as a needed project for this area. We have no desire to see the project curtailed or moved to another site.

11.1 Our concern is that the northwestern extension of the Cowboy (gilsonite) Veins passes directly through the land parcel on which the power plant will be constructed. The Cowboy Vein is the largest and most valuable of the gilsonite veins in Utah, and our company has mined gilsonite from this vein for many decades. Mining is gradually progressing northwestward toward the proposed plant site, and ultimately it will be feasible to extract gilsonite from deep deposits beneath the proposed power plant. The power plant and deep mining are not mutually exclusive, but recognition of future impacts should be considered in the development of the power plant design.

11.2 The draft EIS is deficient in its treatment of gilsonite resources, the only mention being made on page 182. A separate, slightly more detailed engineering report by Burns and McDonnell for Moon Lake, briefly discusses gilsonite and confirms that traces of a gilsonite veins were observed crossing the plant site property. However, the report attaches no significance to this observation and does not recognize the fact that



Mr. Greg Thayn, Team Leader
Page 2
February 23, 1981

11.2 (cont.) gilsonite is a valuable commercial resource of very limited occurrence, or that the large Cowboy Vein projects northwestward directly beneath the proposed power plant site. A U.S. Geological study, apparently not yet complete, may yet point out the importance of gilsonite, but the draft EIS does not adequately cover the subject.

Recovery of gilsonite from the Cowboy Vein beneath the proposed power plant site will involve mining at a depth of 800 to 1000 feet on a relatively narrow vertical vein, probably requiring a period of three to five years to mine out the vein beneath the property once mining progresses to the eastern boundary of the property. Such deep mining will not cause subsidence at the surface, but it will be necessary to construct ventilation and access shafts at intervals of 1000 to 1500 feet along the course of the vein as mining progresses northwestward along the vein. Underground mining will require a minimum of surface occupancy, and blasting is not required during gilsonite mining. According to the site plan for the proposed power plant, no permanent structures or large buildings are planned in the immediate vicinity of the Cowboy Vein, but the plan does show fuel stockpiles and waste dumps over the vein.

11.3 The draft EIS does not indicate how the power plant operator will acquire control or title to the state and federally owned lands under the proposed power plant. We presume that the plant operator will purchase or perhaps lease the surface, with mineral resources being reserved to the respective state and federal governments. We urge that any land conveyances expressly reserve to the state or federal government the gilsonite resources, together with the right to lease and mine the deposits. Express provision should be made for limited surface occupancy and access during any period of mining. If plans for the proposed power plant site can be reviewed to assure that limited surface access during mining will not adversely affect power plant operations, the two activities can be conducted concurrently without difficulty or inconvenience. After mining under this limited segment of the Cowboy Vein is completed, a duration of three to five years, the mining facilities can be removed and the surface restored.

We hope that calling this important matter to your attention will result in appropriate action in the design and planning of the proposed power plant site to accommodate future gilsonite mining. More intensive study may indicate the existence of other gilsonite resources under this tract of land, in which case similar accommodations will need to be made to protect a valuable mineral resource. Our company

Comment Letter 11

Mr. Greg Thayn, Team Leader
Page 3
February 23, 1981

would be pleased to cooperate with any further studies or investigations involving gilsonite under or near the power plant site.

Yours very truly,

R. L. Haffner

Robert L. Haffner
President

jr

Response Letter 11

11.1 The text has been amended to reflect this information. See the revised Chapters 3 and 4, "Minerals" sections of "Land Use" of this Final EIS. Mitigation which specifically provides for surface access as it relates to future mineral leasing can be found in Item "ee" in "Measures Required of the Applicant by Federal Agencies" section of Chapter 2 in this Final EIS.

Also, refer to Letter Response 11.3.

11.2 See Letter Response 11.1.

11.3 On Federal lands, rights-of-way (ROW) would be granted for the Bonanza plant site, power transmission lines, railroad, and water pipeline system. Any subsequent uses would be subject to these grants. These RDW grants would also be subject to any existing rights at the time of the grant. These ROWs would be for surface use only.

The applicant desires to purchase the land in the plant site, and BLM may sell the land if the decision is made to build at Bonanza. However, the land is under an Oil Shale Withdrawal, which must be lifted or modified before any sale could take place. If the lands were sold, only the surface rights would be disposed of, and the mineral estate would be retained in Federal ownership. A specific stipulation has been added to the ROW or sale to allow for surface use and modification of power plant surface facilities to allow for mineral extraction.

With either a ROW grant or a land sale, mineral materials could still be extracted, but some restrictive conditions on the mining operations could be enforced.

According to the Utah Division of State Lands, a special use lease would be issued for the State lands on the Bonanza plant site. It is unlikely that a sale of the State land would be made. However, if Utah were to sell the property to Deseret, the mineral estate would be retained in State ownership.

Comment Letter 12

United States Department of the Interior
GEOLOGICAL SURVEY
RESTON, VA 22092

FEB 2 3 1981

Memorandum

To: Team Leader, Bureau of Land Management
Salt Lake City, Utah

From: Acting Assistant Director for Resource Programs

Subject: Review of draft environmental statement for Moon Lake
Power Plant Project, Units 1 and 2, Uintah County, Utah

We have reviewed the subject draft statement in accord with your letter of January 8.

12.1 Our primary concern is the treatment given to the leasable mineral resources of the project area. The statement addresses the impacts expected on oil and gas, but the other minerals, such as oil shale, gilsonite, and coal have been neglected. For example, charts on Environmental Profile, (p. 219 to 237), cover all other facets of the environment, but fail to address mineral resources. Pipelines, transmission lines, railroads, and highways may have a detrimental effect on the recovery of minerals in the land over which they are constructed. We feel that the mineral resource value of the area, in particular the Bonanza site, should be discussed in more detail in the final statement. Factors vital to understanding leasable minerals on the property include the presence of two gilsonite veins, the fact that the plant site is within the Bitter Creek-Red Wash Known Geologic Structure, and the presence of oil shale beneath the property (basic information includes depth, thickness, and grade). We find no indication that standard geological references were consulted in preparing this document. A pertinent source is: Pruitt, R. G., Jr., 1961, The Mineral Resources of Uintah County: Utah Geological and Mineralogical Survey, Bulletin 71, 101 p.

The increase in total dissolved solids concentration in the Green River down-
stream from the project is estimated (p. 253, last par. and p. 255, last par.)
12.2 to be more than twice as great for diversions from the Green River (0.8 mg/l)
than from the White River (0.33 mg/l). While the increase is small in either
case, it is not clear why there should be a significant difference since the
increase in both cases is due to diversion of flow without return flow to the
12.3 river. In addition, the statement should evaluate the potential for ground-
water impacts from the proposed dewatering of the Deserado Mine (p. 63).

Hillary A. Oden
Hillary A. Oden

Response Letter 12

12.1 Analysis of gilsonite has been added to Chapters 3 and 4 of this Final EIS (refer to Letter Responses 11.1 and 11.3). Oil shale has been analyzed in Chapter 3, Affected Environment, page 187 of the Draft EIS. No coal resources have been identified on either plant site. The U.S. Bureau of Mines (Letter 21) has not identified impact to mineral development from linear facilities and has stated that, overall, the project should be beneficial to any oil shale, coal, and other mining operations in the region because of increased electrical power.

12.2 The difference of impacts downstream in the White and Green Rivers is due to two factors: (1) flows in the river where the diversion would take place; and (2) salinity of the flow where the diversion would take place. At the point of diversion, the Green River is less saline than the White River. Removing the better quality water in the Green River would reduce somewhat the dilution that would occur below the confluence with the White, which would have a greater impact than taking saline water directly from the White River. Water quantity and quality above, at, and below the point of diversion must be considered in determining the impact on the downstream conditions.

12.3 As pointed out on page 168 in the Draft EIS, the ground water in the vicinity of the Deserado Mine area has been investigated by Hansen (1979). There is, however, a general lack of knowledge concerning the extent of ground water aquifers and ground water-surface water relationships. From the testing that was accomplished, it was found that the ground water was generally of a low quality (i.e., 3,200 to 7,000 mg/ℓ TDS concentrations). Also, tests showed large drawdowns and low pumping rate potential.

The mining zone of the proposed Deserado Mine is located between two sandstone formations, both of which contain tightly held ground water. These aquifers are not considered to be significant.

The only surface water assumed to be supplied by ground water in the project area is the Cactus Reservoir and surrounding wetland areas. This is fairly good quality water and indications are that this water is not connected with the deeper ground water aquifers. Thus, mining would have no impacts on this source (supplying Cactus Reservoir) which originates away from the mine area.

Most of the water encountered within the mine would be utilized underground for dust suppression and other mining activities. The dewatering could cause some water loss from the ground water system. However, removing this poor quality water (that is generally destined for the White River system) would improve the water quality in the White River.

The impact of mining and dewatering the Deserado Mine would be minimal, primarily because of the limited amounts of ground water that are found in the mine area.

PLANNING STAFF REVIEW AND COMMENTS

MOON LAKE PROJECT
DESERET GENERATION AND TRANSMISSION COOPERATION

CONCERNS:

13.1 Moffat County has not been considered in the socio-economic impact area from the Moon Lake Project. Specifically, the Town of Dinosaur has been overlooked as being affected by the project. We think this is a serious oversight. (Page 24)

13.2 1) The town is presently operating at capacity population (Page 266, 290, 14)

13.3 2) The peak population projection (Page 275 & 276) for Dinosaur from the Moon Lake Project, if constructed in Rangley, is over 37% of the present population. If constructed at Bonanza, the peak projected population is over 31% of the present population. Community services will feel short here.

13.4 3) It seems clear, that because of transportation limitations (no railroads in Western Moffat County, Northwest Rio Blanco County, or Northeastern Utah) the rail line ending in Craig will be used extensively along with Highway 40 from Craig through Dinosaur and into Utah. (Page 63 & 187)

13.5 4) US Highway 40, in Moffat County will be used extensively for access to the Deserado Mine with 471 truck loads per day of coal passing through Dinosaur. (Page 77)

13.6 5) Volume of traffic through Dinosaur will increase whether the plant is in Rangley or in Bonanza. (Page 77)

13.7 6) If the electric railroad is built from Deserado Mine to Bonanza, there will be significant impact in Moffat County. (Page 66-70)

- a) Materials and crew to build this railroad would come through and stay in Moffat County and Dinosaur during construction.
- b) Significant patterns of cut and fill would impact Moffat County. (Page 70)
- c) 35 year mine life and use of the rail means constant maintenance and constant use for the duration of the project. (Page 6)
- d) Dinosaur planning officials should be contacted regarding impact of the railroad to their town.

13.8 7) The tax imbalance will also affect Moffat County although no mention of this has been made in this report.

- a) Community services demand will increase in Moffat County and especially in Dinosaur. (Page 14)
- b) State and County roads being used as access to various components of the project will have to be maintained due to increased use; Highway 40, County Roads 61, 64, 134.
- c) Air quality and noise pollution in Moffat County will increase. (Page 24, 269 270)
- d) No mention has been made of current socio-economic conditions in Moffat County, Craig or Dinosaur. (Page 189)
- e) Use of Moffat County recreation opportunities and their use by Moon Lake's workers has notbeen explained. (Page 306)

13.8 (cont.) Because of these impacts more thought should be given to the mitigation of these impacts in Moffat County as well as Rio Blanco County and Uintah County. We will receive none of the tax benefits from either the mining operations or the power plant - only populatin spillover Has Deseret planned mitigating measures for our area? (Page 292 & 294)

13.9 8) Because of the above listed concerns we think Deseret should:

- a) Include Dinosaur officials in their co-ordination efforts not mentioned on page 114.
- b) Consider Dinosaur as an area of Urban Land use not mentioned on pages 103 & 184.
- c) Consider any land use plans made by the town of Dinosaur Planning Commission and the Moffat County Planning Commission. (Page 187)
- d) Consider that Moffat County and especially Dinosaur may take some of the "remaining 25%" population distribution as well as Rio Blanco and Uintah Counties. (Page 286).
- e) Include other major Moffat County energy projects, as well as ColoWyo, in total work force estimates give on page 298. These should include the work force projected for the Juniper - Cross Mountain **Hydroelectric** Dams, and the W.R. Grace Synfuels project.
- f) Include Dinosaur on the list of local governments to contact. (Page 333)

These are some of the major concerns our department has concerning the Moon Lake Project and the Deseret Generation and Transmission Cooperation Project.

Sincerely,

Russell L. Sorenson
Russell L. Sorenson
Moffat County Planning Director

13.1 The issues listed on page 24 of the Draft EIS are those identified by agencies and individuals at the scoping meetings.

The EIS intended to analyze the public concerns and, based on the nature and number of the comments, make a determination on the level of detail needed for suitable EIS coverage. Since this issue was not identified as significant in the scoping process or in consultation with cooperating agencies, it was not addressed in detail in the Draft EIS. Transportation-related impacts to the Town of Dinosaur are analyzed on page 270 and population increases are quantified on pages 275 and 276. Dinosaur is also being included in the proposed mitigation plan (Appendix 11).

The socioeconomic analysis focused mainly on the principle communities (Rangely and Vernal) in the area where the greatest impacts are expected. Therefore, smaller communities in the area (like Dinosaur and Jensen) were included in the study but not in as much detail. Data on Dinosaur is specifically cited in tables 4-11 and 13, 4-23 and 24, and included in the Housing Demand and Student Enrollment Projection Tables of Chapter 4.

13.2 Refer to Letter Response 13.1. The text has been modified to reflect this data. See the revised Chapter 4, "Local Government Impacts" section of "Socioeconomic Impacts" under both unit 1 and units 1 and 2 scenarios in this Final EIS.

13.3 Refer to Letter Response 13.1. The text has been modified to reflect this data. See the revised Chapter 4, "Population Projections and Residential Distribution" section of "Socioeconomic Impacts" under both unit 1 and units 1 and 2 scenarios of this Final EIS.

13.4 Chapter 4 (pages 269 to 270) of the Draft EIS presents an analysis of transportation impacts relative to the Town of Dinosaur. Deseret has proposed to use a railhead at Mack in Grand County, Colorado for delivery of heavy components which would lessen impacts in Moffat County. Other construction materials could be transported from the east or the west along U.S. Highway 40, but no significant impacts would be expected.

13.5 Please see Letter Response 13.4.

13.6 Refer to Letter Response 13.4.

13.7 Analysis of significant railroad-related affected environment and impacts can be found in the Draft EIS, Chapter 3: pages 163, 164, 166, 170, 172 through 179, 182, 184, 219, and Chapter 4: pages 252, 257 through 260, 263, 265, 266, 269.

Deseret has informed BLM that planning officials of Dinosaur have been contacted concerning the impacts of the project on the town and mitigation of those impacts. Possible railroad-related impacts to Moffat County could occur from construction crews, significant patterns of cut and fill, and maintenance and use for the life of the project. Please also note Comment Letter 22f (February 25, 1981) in which the Colorado State Department of Highways concludes that "...There will be some increased traffic from work trips and shipment of construction materials but no significant impacts."

13.8 Refer to Letter Response 13.1. Air quality in Moffat County would decrease. Plant emissions causing adverse impacts are analyzed on pages 240 to 250 in the Draft EIS. Relatively significant impacts would accrue to the Town of Dinosaur; however, the town would receive none of the tax base resulting from the project. This information is reflected in the Summary and Chapter 4, "Local Government Impacts" of "Socioeconomic Impacts" under both unit 1 and units 1 and 2 scenarios in this Final EIS.

13.9 Town of Dinosaur officials were represented at a coordination meeting held at the Town of Dinosaur (June 11, 1980) in which regional socioeconomic issues were discussed. Item "g" on page 114 of the Draft EIS, Future Coordination, would include Town of Dinosaur officials. Consideration of possible land use conflicts was made in a phone conversation with the Moffat County Planning Office (1980); however, none were identified. Note that project-related population projections for Dinosaur are contained in tables 4-11, 4-13, 4-23, and 4-25.

The discussion of cumulative socioeconomic impacts in Chapter 4 does include the Colowyo project. It is recognized that the Juniper-Cross Mountain project and the W. R. Grace Synfuels project would also contribute to the cumulative impacts, especially in Moffat County. However, the lack of data or uncertainty of the timing of these projects did not permit their inclusion in table 4-36. The Draft EIS recognizes that there would be important transportation related impacts to Dinosaur, as quantified on page 270 of the Draft EIS.

Written comment on the Draft EIS for the Moon Lake Power Plant Project

To: Greg Thayne
Bureau of Land Management
University Club Building
136 East South Temple
Salt Lake City, Utah, 84111

From: Joyce Newman
464 Douglas St.
Salt Lake City
Utah, 84112

14.1 The use of public lands for financially speculative projects is, at the very least, questionable. The EIS for the Moon Lake Project does not demonstrate the need for this project. Instead, it shows very clearly that there would be a market for the electricity only IF industrial development comes in. The plant is not needed, it is speculative.

Because of this fact, the impact that such a plant would have on the environment becomes far more important. This is not an emergency situation which, to save human life, would necessitate the type of environmental impact which is clearly delineated in the EIS. 14.2 The Moon Lake Project is wastefully conceived from many viewpoints and outright destructive in many other ways, not least of which is the quality of human life of both the inhabitants of the area and of persons who use the High Uintas Primitive Area as a recreation area. 14.3 The impact of construction of the plant and its operation would adversely affect the entire Colorado River system from where it is joined by the Green River, the entire length of the Green up to Flaming Gorge, as well as a large section of northeastern Utah. Furthermore, there are several instances in which the impact has not been properly assessed.

On pages 130-159, Table 2-13 summarizes the magnitude of the impacts of the project and the electrical corridors which go with it. The number of irreversible, irretrievable destructive changes which would occur because of the plant are very great, and all the elements of the environment--land, air, water, animal life, aquatic life, cultural and scientific resources--together with the elements of human life are shown to be adversely affected. A few high-lights from the statement follow.

HUMAN LIFE

p. 302. Population increases would change the lifestyle of the area from fundamentally rural to urban.

Housing: a choice between construction to accommodate the influx of workers--which would remain empty after they leave--or a trailer-park and temporary camps would be constructed to house workers there for only a few years.

14.4 An increase in crime can be expected. Supposedly the major vices of boom-towns--violent crime, gambling and prostitution--will be avoided but there are no mitigating measures proposed to accomplish this. Similar increases in population of small towns have always led to violent crime, murder, gambling, prostitution and a general deterioration of the quality of life. Hiring a few more policemen doesn't help.

14.5 Vernal has an overloaded and oudated water and sewage system now. "It may not be possible to improve it in time for the proposed population expansion." Page 281. It is unthinkable to start construction until this problem is faced, and remedied. And without the huge tax burden falling on the present inhabitants.

IMPACTS ON THE ENVIRONMENT

14.12 AIR. The most serious lack in the EIS concerns acid rain. Page 240, "Formation of acid in the atmosphere is not well understood at the time although it does occur." "There would be an adverse impact." This is quite simply incorrect. There are many articles in scientific journals about acid rain and its effects both in the eastern United States and in Norway. One of the facts known is that the higher the smokestack, the greater the amount of acid formed in the atmosphere. Another is that lakes with stony rather than sandy, vegetated bottoms are most quickly and irremediably affected. Furthermore, there is the question of the cumulative effect which has not been addressed at all in the EIS. It really is necessary that such projections be made, that acid rain be studied, and that Deseret propose mitigating measures. The potential for destruction of all forms of life from this menace is very great.

14.13 Trace elements. "No modeling has been done for this project." Why not? There will be many trace elements emmitted by the smoke stacks at the plant--again, study, projection and mitigating measures need to be done and proposed.

14.14 LAND. Pages 306-307, it is stated that there would be permanent disturbance of the soil causing erosion and in some places, the destruction of native species of vegetation. The impact of ORVs was termed "not quantifiable". On page 257, several species of plant which might be lost, and some which definitely would, are listed. "Surveys would be made--" "and consultation"--IF the plant is approved. That is too late. Nothing compels such action after the fact and it would be impossible to control. It must be done now. Insofar as erosion is concerned, it really MUST be recognized that this is a semi-desert area; that the destruction of native species brings in noxious invaders; drowth is certain so the spread of such species is certain. Invaders, once they get a hold, take over land which borders eroded areas and eventually, livestock are affected. Sometimes erosion cannot be stopped in mountainous, semi-arid areas.

14.15 WATER. The whole river system would be affected. Three species of endangered fish could be wiped out by the slightest negligence or tiniest error. The mitigating measures proposed (buying water from Flaming Gorge IF the levels go to low) are simply not certain enough. The additional salinity in the water would affect ALL forms of aquatic wild life as well as riparian vegetation. This has been almost totally ignored in the EIS and such studies should be done before the plant is allowed to proceed.

14.16 Finally, the corridors would affect a number of endangered birds including the peregrine falcon, and golden eagle. Other animals affected would be the sage grouse, deer and moose, antelope--and in fact, all animal habitat simply due to the increased number of humans and machines in the area.

SUMMARY: The information given in the EIS indicates that there is a MARKET but not a need for the plant and that it is a speculative, not a necessary venture. In view of this, extreme care should have been taken to choose a site which would have a minimal affect on the environment. Instead, the EIS shows a great deal of destructive effects on both humans and nature would take place if Deseret is allowed to proceed. At the very least, they must undertake the study of human loss of life and of quality of human life and give proof that they CAN mitigate the adverse affects of construction; the study of acid rain, trace elements and cumulative effects; and a far more detailed study of the effects on the water system.

Joyce Newman
Joyce Newman

14.1 To a certain extent, all utility planning is speculative. An electric utility must be in a position to supply electric service upon request to any load which develops in a service territory. To be in a position to do this, the utility must professionally forecast where and when load growth will occur. Deseret, Deseret's members, and REA have carefully evaluated the potential of load growth and these estimates are reflected in tables 1-4 and 1-6. These load forecasts indicate Deseret's members will require additional electric power amounting to 180.0 MW in 1985, 606.4 MW in 1990, and 969.5 MW in 1995.

With Moon Lake unit 2 not presently committed Deseret retains some planning flexibility. Deseret has tentatively scheduled to commence construction of the unit in 1983. If load growth does not occur as forecast in the PRS, Deseret will have sufficient time to adjust its schedule and plans.

14.2 As indicated on page 306 of the Draft EIS, the only significant project-related effect anticipated on the High Uintas Primitive Area would be increased use caused by associated population growth. It is expected this would result in increased management activities and actions to prevent or minimize deterioration of values present there.

14.3 The withdrawal of water for the Moon Lake project would impact water quantity and quality in the Colorado River system as analyzed on pages 250 to 256 of the Draft EIS. However, the analysis of project-related effects on the entire Colorado River system shows that full development of Deseret's water right would remove only 0.69 percent of the Green River's average flow at Green River, Utah. Since the Colorado River's flow is much greater than the Green River's, an even smaller amount of the Colorado River flow would be removed. The effects on water quantity and quality are, therefore, expected to be insignificant. Please refer to Oral Testimony Responses 8 and 9.

14.4 Refer to Oral Testimony Response 12.

14.5 Thank you for your comment. This information will be used in the decision-making process.

14.6 Please refer to the Draft EIS, page 114, Item "h", and page 115, Items "m and o" for mitigation of transportation-related impacts. The anticipated increase of 88 accidents does not necessarily represent fatalities.

See Letter Response 14.1 on the need for the project.

14.7 The observations in the comment are correct. Increased use would require increased management activities to preserve the quality of the resources and the experiences afforded there. Those activities could take the form of permits or other actions to control use.

14.8 Please refer to Oral Testimony Response 9. In addition, there would be no effect in Split Mountain, Whirlpool, or Lodore Canyons because they are upstream from the point of diversion (withdrawal). Regarding salt concentration, please refer to Oral Testimony Responses 7 and 8. Also, note that the present permit process involves written application and a lottery when applications exceed the allowed quota. People would not have to "line up".

2

14.6 Page 270. An increase of 88 highway accidents per year during construction on affected highways is anticipated. No mitigating measures are proposed. 88 highway accidents per year translated into terms of human life means a projection of approximately 176 human beings injured, maimed, or killed yearly during construction. The price in human lives of the construction of an unneeded plant is not projected. It should be part of any such EIS.

14.7 Recreational resources will be affected. Page 305 says that overcrowding of developed facilities definitely would occur. Facilities would experience further degradation. Sanitation problems would increase. (It is already inadvisable to drink natural water in the Uintas even above 10,000 feet! Because of human pollution.) The roads would make the area more accessible to ORVs. The entire Primitive Area would be affected. (Already many camping areas which are still undeveloped are placed under restriction BEFORE midseason as high as 11,000 feet. This is one of the very few places in the entire United States in which the million or so inhabitants of the urban areas can, within an hour, escape to a Primitive Area for solitude and re-creation of themselves. It is already overcrowded--bringing in a few more thousand users would soon make it necessary for those of us who have been going there for years to get permits and use degraded camping areas.)

14.8 The water problem is severe. Withdrawal from the Green would affect the levels throughout the system. It would become necessary to line up for permits to run the "wild" rivers--Lodore, Desolation, Split Mountain, Grey, Whirlpool--Cataract Canyon would again be affected. The higher level of salts in the water would again affect the vegetation along the shores--and the invaders, especially tamarisk--would be encouraged while native plants are pushed out.

14.9 Hunters would find their game reduced. Page 304 says that while the reduction of big game from legal harvest would be minimal, ILLEGAL harvesting and harassment by ORVs, sightseers would cause "an unquantifiable loss". Does the EIS mean that since it is unquantifiable, there need be no mitigating measures proposed?

14.10 Cultural resources which would be affected have been given insufficient attention. Page 308 states that 9 sites were discovered during exploration--two of which were eligible for the National Register. 387 (three hundred and eighty-seven) more were found through literary search. (It is unknown how many would be found during construction! This should be researched BEFORE they are inadvertently destroyed.) Page 309, "Even with present salvage techniques, some scientific and educational information could be lost." Page 308, "Increases access would likely result in increased vandalism." (Certainly--without the sites having been studied or protected.) Page 308, "Construction and maintenance could inadvertently damage or destroy cultural resources." In other words, there would be absolutely certain destruction of some scientific and educationally valuable material. How vital? How Much? There is no way of knowing because 9 sources out of a known 387 is too small a sampling by far.

14.11 Visual impact, page 263, "Construction at either the Bonanza or Rangely site (Bonanza, now, of course) would modify the landscape character and exceed the acceptable limits of the visual resource management objectives for the life of the project." Bonanza would be visible from the highway and out of character with its surroundings, and the Deserado Mine would not meet visual objectives about refuse disposal, coal storage and loadout as well. Meanwhile, the mine would be out of commission in 20 years, 45 % of its coal unusable, and trucking of coal, meaning more human highway accidents, would commence!

14.9 Increased illegal kills would result from population growth in the area. It is anticipated that, as a result of the increased hunter activity and interest, the Utah Division of Wildlife Resources and the U.S. Fish and Wildlife Service would increase their activities and efforts in the region to deal with problems of this nature.

14.10 Please refer to page 119 of the Draft EIS, Item "o". This standard measure authorized by existing legislation requires: (1) intensive surveys and clearances prior to construction; (2) identification of sites; (3) consultation with the appropriate officials; and, (4) all possible mitigation of adverse impacts to cultural resources. Following this process, no significant loss of cultural resources would be expected.

14.11 Your observations regarding visual resource impacts are correct.

Regarding the life of the mine, your conclusions correctly represent the worst-case situation. However, there is a potential for acquiring additional leases that could extend the life of the mine.

14.12 The effects of acid rain have been well documented in the eastern United States and Scandinavia. However, the complex chemical reactions occurring in the atmosphere to form acids vary greatly, depending on atmospheric conditions; also, the complete cycle of pollutants emitted into the atmosphere is not well understood. Areas in the eastern U.S. and Scandinavia are downwind of densely industrialized areas with far greater emission densities than is presently found in the vicinity of the Moon Lake sites.

Acid rain is being studied intensively. Monitoring stations are being established throughout the United States as part of the National Atmospheric Deposition Program. The BLM is planning to monitor atmospheric deposition (including acid rain) in the Uinta Basin area to identify trends during the anticipated increased energy development in the region. The monitoring station would be part of a regional network gathering data to determine trends in atmospheric deposition.

14.13 No modeling was done for trace elements because no significant impacts from trace elements have been detected from similar-sized power plants in similar areas of Utah. In addition, air quality regulations affecting this project do not require modeling of trace elements.

14.14 Please see the Draft EIS Items "e, g, j, and k" on pages 117 and 118 under "Measures Required of the Applicant by Federal Agencies". The mitigation outlined in those sections is real and enforceable and would be carried out regardless of which alternative is selected. Project approval does not constitute, in any way, a nullification of any mitigation measures which have been outlined in the Draft or Final EIS.

The impacts to soils (erosion) and vegetation (invasion of noxious weeds and loss of forage production) are acknowledged in their respective sections in the Draft EIS.

14.15 The USFWS and BLM are required by law to protect endangered species. USFWS indicated that water depletions during low flow periods should not occur until specific needs of endangered fish found in the Green River are known. A study currently being conducted by the UFSWS is scheduled to be completed by January 1982 and should answer many unsettled questions. The USFWS Biological Opinion, page R-152 of the Draft EIS, states that reduction in flow would affect the endangered fish more than the changes in water temperature or salinity. The endangered fishes are warm water creatures adapted to a wide range in temperatures and salinities. Estimated salinity increase would be 0.8 mg/ℓ at Green River, Utah as a result of flow depletions. These fishes have been observed and collected in waters with much greater salinity levels.

Additionally, the projected salinity increase, by itself, would have no measurable effect on riparian vegetation. The projected salinity level with the Moon Lake project would be 512.8 mg/ℓ by 1986 (see Draft EIS, table 3-3). Damage to cultivated crops starts to occur at 750 mg/ℓ (USDI, 1981), and riparian vegetation is generally much more salt tolerant than most cultivated crops.

14.16 The analysis in the comment is correct. A similar analysis is presented on pages 203 and 259 of the Draft EIS.

Comment Letter 15

Utah Audubon Society
P.O. Box 9419
Salt Lake City, Utah 84109

March 2, 1981

Greg Thayn, Team Leader
Bureau of Land Management
University Club Building
136 East South Temple
Salt Lake City, Utah 84111

Dear Mr. Thayn,

The Utah Audubon Society is a Salt Lake City based Chapter of the National Audubon Society composed of approximately 800 members. As an organization deeply concerned with the quality of the environment, we have carefully reviewed the Moon Lake Power Project Environmental Impact Statement (Draft). We submit the following comments to be addressed in the Final EIS.

CHAPTER 1. Purpose and Need of the Proposed Action.

15.1 p. 23. The power figures given for oil shale should be qualified with the following statement, "The need is not known or proven; the applicable and/or economic process is not known for oil shale development."

CHAPTER 2. Description of the Proposed Action and Alternatives.

15.2 p.77 If an alternative other than the preferred alternative is selected, the BLM should stipulate a water return system for the slurry pipeline. A water return system would help to minimize impacts of water withdrawals from streams.

15.3 p. 107 Deseret's estimated delay cost of an additional $30 million per year due to inflation should not be used. A value using constant dollars should be used instead. The use of a constant dollar value is the only true way to keep an undistorted perspective of the increasing costs of the project.

15.4 p. 128 We question why tower sharing is unacceptable to REA. What are the statistics to back up their claim of an increased risk to the interruption of electrical service? According to REA, "A single unscheduled outage could cost consumers several hundred thousand dollars." What are the environmental and construction costs (in comparison) to build parallel lines? To make a true comparison, a benefit and cost analysis must be done. Consumers endure costs not only through a outage, but also from environmental damage resulting from tower construction.

15.5 p. 177; Figure 3-3 The legend and map delineations on this figure are difficult to interpret. We suggest more contrasting colors be used to delineate fawning areas and winter range.

APPENDIX 21. Acid Rain

15.6 P. R-141 The statement, "With burning of low sulfur western coal (as is the case with the proposed Moon Lake Power Plant), coal fired power plants would contribute less to acid precipitation than plants using higher sulfur," is a misleading statement. There is an implied comparison with eastern coal which is misleading because western coal has only two-thirds the heat content of eastern coal. This means you must burn more coal to generate an equivalent amount of electricity. This additional coal burned offsets a portion of the supposed benefit of burning low sulfur western coal.

Comment Letter 15

We appreciate the opportunity to comment on the Moon Lake Power Plant Project Units 1 & 2, and look forward to future involvement in energy development issues on public lands.

Sincerely yours,

Ronald D. Reece

Ronald D. Reece
Member, Board of Directors and
Co-Chairman, Energy and Lands Committee

for
UTAH CHAPTER,
NATIONAL AUDUBON SOCIETY

Response Letter 15

15.1 A footnote to table 1-7 has been added which reads: "Estimates of power requirements for oil shale projects are based on information provided by project management. Processes for shale oil extraction are in pilot or developmental stages."

15.2 A water-return pipeline system is stipulated for the slurry pipeline should that alternative be selected. See Draft EIS, page 75, under heading "Slurry Pipeline" for that description.

15.3 The $30-million estimated cost per year delay was in 1980 dollars. The cost increase for each succeeding year would be expected to increase the $30-million estimate in proportion to the rate of inflation.

15.4 The relative costs of tower sharing were discussed on page 101 of the Draft EIS. The environmental impacts were evaluated in Appendix 6 and 12. Also refer to Letter Response 30.24.

REA believes that the impacts of an electrical outage to the human environment cannot be sufficiently quantified to warrant a cost-benefit analysis. However, the subject of impacts resulting from electrical outages were discussed at Wattec - 7th Annual Energy Conference held in Knoxville, Tennessee from February 20-22, 1980, by Frank Clemente in a paper titled "Sociological Implications of an Energy-Deficient Society." A copy of that presentation is being provided.

15.5 Thank you for your comment. Figure 3-3 is reprinted in this Final EIS.

15.6 The analysis assumed a heating value of 10,000 Btu per pound with a sulfur content of 0.45 percent. While the coal used may have a heating value of 2/3 of some Eastern coal, the sulfur content is several times lower than most Eastern coal. BLM agrees that the additional coal which would be burned because of lower heat content would offset a portion of the benefit of burning low sulfur Western coal. However, BLM does not concur that the statement mentioned is misleading, because the SO_2 produced per Btu of energy produced is less than that using higher sulfur content Eastern coal.

Comment Letter 16

United States Department of the Interior
WATER AND POWER RESOURCES SERVICE
UPPER COLORADO REGIONAL OFFICE
P. O. BOX 11568
SALT LAKE CITY, UTAH 84147

IN REPLY REFER TO: UC-150
120.1

Memorandum

To: Mr. Greg Thayn, Team Leader, Bureau of Land Management, University Club Building, 136 East South Temple, Salt Lake City, Utah 84111

From: Regional Director
Water and Power Resources Service

Subject: Review of Draft Environmental Statement, Moon Lake Power Plant Project, Units 1 and 2 (BLM) (DES 81-2)

This office has reviewed the above document for the Water and Power Resources Service and offers the following comments:

16.1 1. Statements in the draft environmental statement infer that water from Flaming Gorge Reservoir would be released to make up for depletions in the Green River because of pumping to the alternative power plants. Release of water from Flaming Gorge Reservoir would be provided for beneficial and consumptive uses downstream based on contracts for the sale of water which would require the approval of the State of Utah and the Secretary of the Interior--the point being that water is available from the Flaming Gorge Reservoir for release assuming the proper institutional requirements have been met for the downstream use of water. The Service's position on this issue is that non-Colorado River Storage Project (CRSP) developments in the Upper Colorado River Basin should provide their own mitigation for impacts caused to endangered fishes, and the CRSP system should not be expected to or necessarily relied upon for the mitigation source.

16.2 2. The potential loss of power due to depletions in the Upper Colorado River Basin water as a result of depletions to the system attributed to the Moon Lake Power Plant Project should be discussed. We have this information and will make it available upon request. It may be possible that depending on the requirements for release from Flaming Gorge Reservoir, based on purchase of water for the alternatives discussed for the Moon Lake Power Plant Project, there may be interferences resulting in loss of power generation at Flaming Gorge.

16.3 3. Cover Sheet - The Service should be added to the list of Interior agencies under Other Responsible Agencies With Jurisdiction.

Comment Letter 16

16.3 (cont.) The Service will prepare and process, on behalf of the Secretary of the Interior, the water sales contract for any water made available from Flaming Gorge Reservoir for this project.

16.4 4. Page 18 states that the Central Utah Project will be completed in 1985. This error should be corrected to show completion of the power producing system around 1990.

16.5 5. The impacts presented on salinity in the Green, White, and Colorado Rivers appear reasonable, but cannot be verified without more information. The total depletion of both water and salt should be better defined and the year used to compute impacts should be identified.

16.6 6. In Appendix No. 3, under the Department of the Interior, an additional Federal Authorizing Action is required. If, as stated in the draft environmental statement, water is to be obtained from the Flaming Gorge Reservoir, it must be done so through a water sales contract with the Service as approved by the Secretary of the Interior. The water sales contract action should therefore be identified, the approximate amount of water to be purchased indicated, the name or names of the party or parties with whom the contract would be executed, and the authority shown for selling the water which is the CRSP Act (P.L. 84-485).

16.7 7. Page 196 states that the Central Utah Project plans to build a water treatment plant near Vernal in association with the Jensen Unit. It should be pointed out that it is the Central Utah Water Conservancy District, not Central Utah Project, planning the treatment plant. Also, it could be noted that completion of the plant would probably not be before 1983.

We appreciate the opportunity afforded us to comment on the Moon Lake Power Plant Project draft environmental statement.

cc: Director, Office of Environmental Project Review, Office of the Secretary,
Department of the Interior, Washington, D. C. 20240
Commissioner, Attention: 150

Response Letter 16

16.1 See Oral Testimony Response 3.

16.2 According to the Federal Energy Regulatory Commission (1981), water requirements of the Moon Lake project would result in reduced energy generation at downstream hydroelectric plants. They estimated the loss of generation would total approximately 20 million kilowatt-hours per year at affected main-stem Colorado River hydropower projects. It is noted that reduction in downstream power was expected as the upper basin states use their water as allocated under the Colorado River Basin Compact.

Regarding effects on Flaming Gorge operations, releases would be affected only when the Green River's normal flow dropped to 400 cfs. In that event, additional make-up water would be released. However, the releases that low have been very infrequent. Therefore, no significant impact on Flaming Gorge power plant operation is anticipated.

16.3 The cover sheet in this Final EIS has been revised to include the Water and Power Resources Service.

16.4 The expected retirement date of Moon Lake Electric Association's hydroelectric capacity is 1989. Thank you for providing information on the expected completion date of the CUP. The text has been revised to reflect the 1989 retirement of Moon Lake's hydroelectric capacity.

16.5 Chapter 4 "Surface Water" section under "Water Resources" of this Final EIS has been revised to include this data.

16.6 This authorizing action has been added to Appendix 3 of this Final EIS.

16.7 The text has been revised to reflect this comment. See the revised Chapter 3, "Community Services" section of "Socioeconomic Impacts" in this Final EIS.

State of Utah
Division of
Parks & Recreation
1596 West North Temple
Salt Lake City, Utah 84116
(801) 533-6011

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Director

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Jack Shapiro, Chairman

An Equal
Opportunity Employer

1 of 2

Februaru 28, 1981

Greg Thayne, Team Leader
Bureau of Land Management
University Club Building
136 East South Temple
Salt Lake City, Utah 84111

RE: Draft Environmental Impact Statement
Moon Lake Power Plant Project - Comments

Dear Sir:

I represent the Dinosaur Natural History Museum in Vernal, Utah. This museum was established over 30 years ago to collect and house fossils from the Uinta Basin. We are therefore concerned with the paleontological impact the power plant will have.

17.1 In the Paleontological report prepared by Madsen and Nelson (1979), they address the 3 horizons in the Uinta Formation, horizons A, B, and C and give recomendations on the same. However, in the Draft EIS Table 3-2 on page 164 only horizons A and B have been listed. Horizon C should also be listed in this table.

17.2 It is my opinion that all three horizons in the Uinta Formation should be rated as (H) (High probability of important fossil occurances). In the Draft EIS which lists only horizons A and B, horizon A is given an (L) rating. The findings by Miller and Webb (1980) in the Paleontology report for the White River Dam Project indicates the presence of important fossil occurances in this horizon. It should be rated at least (M) if not (H).

I agree with the (M) rating of the Duchesne River Formation. Fossils from the Uinta and Duchesne River Formations are important for several reasons. First vertebrate fossils in most areas are rather rare and when found provide important scientific imformation. Secondly, Tertiary continental time divisions are based on mammalian fossils. Two such time divisions have been named from formations in the Uinta Basin using fossil mammals from the Uinta Formation and the Duchesne River Formation - the Uintan Age, and the Duchesnian Age. Fossils from these formations are used for correlating formations of similar age in other areas of North America. Therefore fossils discovered in either formation are highly important. (Black and Dawson, 1966; Douglass, 1914; Gazin, 1955; Gilmore, 1916; marsh, 1871; Osborn, 1895; Peterson, 1919; Roberts, 1962; Stagner, 1941; and Simons, 1961.)

State of Utah
Division of
Parks & Recreation

2 of 2

Devil's Playground, Kennedy's Hole and Coyote Basin all have been the sitesof fossil collecting in the past. There is a high probability that fossil occurances will be encountered in these areas. These areas are composed of the Uinta Formation.

17.3 The Dinosaur National History Museum would be interested in curating fossil material salvaged during the project.

Sincerely,

Alden H. Hamblin

Alden H. Hamblin
Museum Curator
Dinosuar Natural History Museum
P. O. Box 396
Vernal, Utah 84078

Response Letter 17

17.1 Horizon C has been added to Table 3-2 in this Final EIS.

17.2 Table 3-2 of this Final EIS has been changed to reflect a moderate rating and the acreage of potential disturbance of moderate to high probability of important fossil occurrence has been adjusted upwards.

17.3 This information will be used in the decision-making process.

Comment Letter 18a

STATE OF UTAH
OFFICE OF THE GOVERNOR
SALT LAKE CITY
84114

SCOTT M. MATHESON
GOVERNOR

March 2, 1981

Mr. Greg Thayn, Team Leader
Bureau of Land Management
University Club Building
136 East South Temple
Salt Lake City, Utah 84111

Dear Mr. Thayn:

18a.1 The State of Utah has reviewed the Draft Environmental Impact Statement on the Moon Lake Power Plant and is submitting the attached comments prepared by the Environmental Coordinating Committee. The analysis in the Draft Environmental Impact Statement focuses on major issues and impacts, and in our view, justifies permitting of the applicant and REA preferred alternative. Development of the Bonanza site, the electric railroad and the Green River water supply seems consistent with the objective of providing a reliable and economic power supply with a minimum of environmental disruption. Our support of these project components assumes that federal agencies and the project sponsor will work closely with state and local governments to mitigate potentially significant socioeconomic impacts. Those mitigation measures outlined in the draft EIS may not be sufficient. Project sponsors are currently negotiating with local governments to assess potential impacts and meet the needs associated with project development. This ongoing process should be recognized by the EIS.

18a.2 Finally, the state expects to be consulted as transmission corridor alternatives are narrowed down and specific routes are selected.

We appreciate the opportunity to review this document.

Sincerely,

Governor

SMM:jb
Attachments
cc: Mr. Dean Stepanek
Acting BLM State Director

Technical Comments

on

MOON LAKE DRAFT ENVIRONMENTAL IMPACT STATEMENT

Transportation

18a.3 1. On page 35, it states "...a road extending southeast from U.S. Highway 40 at Vernal to Utah State Highway 45 at Bonanza, will be upgraded by Uintah County and the State of Utah in 1981." The Utah Department of Transportation (UDOT) is familiar with this proposal by Uintah County. At the present time, UDOT participation is limited to aiding Uintah County in preparing proposals (including justification and estimates) to apply for federal funds to construct this project. Also, we would advise Uintah County on how to follow applicable federal rules and regulations, review the project, and submit it to the Federal Highway Administration (FHWA) should federal-aid highway funds be used for the upgrading of the road.

18a.4 2. On pages 45, 77, 137, 269 and 270, heavy truck loads on State highways are indicated. These will require permits and coordination with the UDOT District Office in Orem, Utah. Should the overhead coal conveyor system be selected UDOT should also be consulted as permits will be required. Substantial clearance is required for this sort of structure.

3. The map on page 47 shows U.S. Routes 6 and 50 on the Utah side of the Utah-Colorado border; this route should be shown as I-70.

18a.5 4. On page 123, it states, "...the same or additional mitigating measures could be required by State and local officials." Perhaps these mitigating measures should be further defined to the same extent that the federal measures were. Futhermore, paragraph h on page 118 does not adequately describe the UDOT's role on review and approval of actions to be taken on any existing State route which is also on the Federal-aid System.

18a.6 5. The third from the last paragraph on page 137 cites a safety hazard on the existing transportation system with the Moon Lake Project. We should like to be informed, as to what will be done to reduce or eliminate this potential for accidents.

6. We present the following comments on the material provided under Transportation, on pages 269 and 270:

18a.7 a. If the on-highway truck-haul route altenative is used, U.S. 40 and SR-45 would have to be substantially upgraded. Funding such improvements would be very difficult for the State at this time. If this alternative is selected, every effort should be made to have the applicant fund the required improvements.

18a.8 b. As to the percentage increases of traffic, we forsee no capacity problems for volumes under 1,000 vehicles a day on SR-45.

18a.9 c. The one aspect of the coal haul that should be evaluated carefully will be the 91 trucks per day during the three-month period in 1983. Unless some action is taken now to prepare for improvements to handle this coal haul, substantial damage to the roadway would result.

18a.10 d. Truck traffic is covered extensively, but there is no mention of commuter work trips. Encouragement to reduce commuter vehicle traffic through use of carpools and vanpools should be included.

Fire Protection

18a.11 The EIS should provide a more detailed assessment of project impact on wildland and structural fire protection needs for both the Bonanza or Rangely sites. More thought should be given to the location of fire substations, manpower needs - both paid and volunteer, as well as additional equipment needs. Acknowledgement by the planning team of the existing Volunteer Fire Department in Jensen (this department has grown during preparation of the DEIS) and the potential impacts of the project on this department are needed.

18a.12 These items must be addressed since the increase in the number of residents of the Ashley Valley may not be confined to the Vernal or Maeser area. This will probably require the establishment of fire substations. The Vernal Fire Department cannot provide adequate protection outside city limits at this time and the mere addition of four more volunteers (page 281) will not help.

18a.13 Although it is probably safe to assume that the project will be constructed by using state-of-the-art technology, we want to be sure that the wildland fire hazard is reduced to the greatest extent practicable. A document entitled "Power Line Fire Prevention Field Guide", available from the California Department of Forestry, contains excellent recommendations for reducing wildfire hazards.

Wildlife

18a.14 The plant itself, if built at Bonanza, will impact some antelope fawning area, but proposed water development in other areas should adequately mitigate this. Coal will come to Bonanza by electric railroad. This conveyance system should have the least impact of all other alternative haul methods. Water should not be a problem as the pipeline from a well near the Green River would be buried and revegetated with native species.

18a.15 Transmission lines will present some problems. First, they should be built in sensitive areas at times of the year that will not disrupt critical wildlife activities (big game range, sage grouse strutting, etc.). Second, all poles should be built to prevent raptor electrocution. Third, lines should be built, when possible, away from roads, etc., to minimize raptor shooting and disturbance; except in areas where the lines are in established power line corridors. Some problems may surface with the bigger

MOON LAKE DRAFT EIS
Page Three

18a.15 (cont.) lines going to Mona and Ben Lomond in the Strawberry area and Ogden Canyon area. It is difficult to judge because the corridors are not plotted in detail sufficient to tell what the center line will affect. Hopefully, Division of Wildlife Resources personnel will have input to final center line designations.

18a.16 The report states all disturbed areas, including the railroad cuts and fills, will be reclaimed by revegetation. It is indicated that revegetation will be successful as this project will not be in an extremely arid area and native vegetation will be used in reclamation. Again, hopefully, DWR will be involved in the selection of seed mixtures and planting procedures. We believe some loss of riparian vegetation will occur depending on how close the wells will be to the Green River.

Specific text comments follow:

18a.17 Page 5, paragraph 1, sentence 4. An additional 100 acres should be added from road and railroad disturbed land. The 4% figure would stay the same.

18a.18 Page 130, paragraph 5, first sentence. The 4% figure represents the impacts to the identified fawning areas and not the total antelope range. The project would impact about 6% of the approximately 300,000 acres of total antelope range in the Bonanza herd

18a.19 Page 136, paragraph 3, first sentence. There have been issues identified regarding potential antelope impacts from the overland conveyor system. The potential to block antelope passage on the conveyor system is high, and only careful planning would prevent this. While impacts from the preferred electric railroad are not expected to be as significant, monitoring will still be necessary to substantiate this fact.

18a.20 Page 142, paragraph 3, sentence 2. The development of new access into wildlife habitat has the potential to be the greatest negative impact of the transmission system. Careful planning and road closures will be necessary to mitigate these impacts. Further planning involving the Utah Division of Wildlife Resources will be needed to define such mitigation.

18a.21 Page 142, Table 2-13. The same headings of soils, vegetation, animal life, cultural resources, visual resources and recreation and land use should be discussed for each of the power line routes on pages 142 through 159. Where impacts are not expected, that should be noted.

18a.22 Page 174, paragraph 5, sentence 6. While impacts of the Moon Lake Power Project alone will not eliminate the antelope herd, the cumulative direct and indirect impacts of this project and related energy projects in the surrounding area could result in the loss or substantial reduction of the herd.

18a.23 Page 259, paragraph 6. Sentence 2. The 4% figure again is

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MOON LAKE DRAFT EIS
Page Four

18a.23 (cont.) representative of losses to fawning areas and not the entire range of the antelope. It is not expected that the Moon Lake Project will eliminate the Bonanza antelope herd if planned mitigative measures are implemented.

18a.24 In addition, a page of corrections and additions concerning Table 4-44, pages 320-322, is enclosed for consideration for the transmission systems. We believe this page will enhance Table 4-44 and correct what we believe are some serious errors in the table.

Water

18a.25 The State is concerned that the mitigation policies proposed by the Fish and Wildlife Service represent a poor understanding of Colorado River hydrology and the state laws which govern the allocation and use of water in the area. Requirements to purchase "offset" or "make-up" water are an infringement on the State's ability to allocate water resources.

Furthermore, the discussion of the issue throughout the EIS is confusing. The extent of the F&WS in requiring make-up water is not clear. For example, p. 253 indicates that "The Water and Power Resources Service is required to release at least 400 cfs. Until releases drop to the 400 cfs level, the 30 cfs owned by Deseret would not be released as make up water and would make no difference to the flow regine." Contrary to the apparent foundation of the mitigation policy, this statement implies that the Moon Lake withdrawal would not alter the flow regime or jeopardize any endangered fishes until it is combined with a number of other hypothetical project withdrawals. At that time, ongoing studies (p. 14) should be completed, providing data to more accurately assess impacts and recommend stream flow requirements.

Rather than require purchases of water to guarantee stream flows, the State would prefer a cooperative arrangement between the Fish and Wildlife Service and the Water and Power Resources Service which would address the endangered species issue and flow requirements.

Test Comments

18a.26 Page 80. The reference to the 250,000 acre-feet annual yield from the Bingham Engineering report is the amount of the Board of Water Resources water right application, but is not the anticipated depletion of the project. The White River Draft EIS estimated a 67,000 acre-feet depletion.

18a.27 Page 83. The White River Dam Project Proposed Action Plan proposes 250 cfs or natural flows to be released below the dam. If BLM agrees to some minimum stream flows below a Colorado Dam, the State would expect the state minimum below the Utah Dam. The question of flow at the border is a matter to be resolved between the states of Utah an Colorado. Numbers cited by Western Engineers and others are only assumption, and subject to change by agreements

MOON LAKE DRAFT EIS
Page Five

18a.27 (cont.) between the two states.

18a.28 Page 180. Paragraph 5 implies that Squawfish are spawning in the White River near Piceance Creek. Other reports by the F&WS have stated there is no evidence of spawning in the upper portions of the river.

18a.29 Page 203. The White River is referenced as being important habitat for endangered and rare species of the Colorado River system. The Fish and Wildlife Service is currently performing studies to determine that fact. BLM should wait the outcome of these studies before classifying the White River habitat.

18a.30 Page 253. Some of the depletion figures sited are inaccurate. Consult the White River Dam EIS for a more accurate and complete listing.

CORRECTIONS AND ADDITIONS TO: TABLE 4-44, P. 320-322

Transmission System Critical Wildlife Areas and Time Periods

	Segment Number	Species	Concern	Action or Mitigation Period	Mileposts
Correct	1	Antelope	Fawning	5/10-6/20	~~0-4~~ 0-6
Add	2	Antelope	Fawning	5/10-6/20	0-7
Correct	3	Antelope	Fawning	5/10-6/20	~~0-4~~ 0-12
Add	6	Antelope	Fawning	5/10-6/20	0-15
Correct	9	Mule deer	Fawning	5/01-6/30	~~6.5-18~~ 12-22.5
Delete	9	Sage grouse	Concentration area		11-12
Delete	10	Golden eagle	Nesting	3/01-4/31	10-15
Delete	10	Waterfowl	Collision with lines	Mark lines	12-14
Correct	11	Deer and elk	Critical winter range	12/01-4/30	0-5 24-29
Correct	12	Antelope	Fawning	5/10-6/20	~~0.23~~ 0-3.5
Correct	13	Whooping crane, waterfowl and bald eagles	Collision with lines	Mark lines	~~0.9~~ 4-9; 22-27
Delete	15	Sage grouse	Concentration areas	3/01-4/30	0-9.5
Add	15	Antelope	Fawning	5/10-6/20	10-15
Correct	17	Waterfowl	Collision with lines	Mark lines	~~5.3-6.3~~ 2.0-6.0
Add	17	Antelope	Fawning	5/10-6/20	6-12.5
Add	17	Deer and elk	Critical winter range	12/01-4/30	0.20
Add	18	Antelope	Fawning	5/10-6/20	0-8
Correct	29	Antelope	Fawning	5/10-6/20	~~0.4~~ 0-8.9
Correct	30	Deer and elk	Critical winter range	12/01-4/30	~~0-23;~~ 52-52.9 0-8
Add	30	Sage grouse	Strutting ground and brood area	3/01-4/30	0-3
Add	35	Deer and elk	Fawning and calving	5/01-6/30	20-60
Correct	35	Sage grouse	Concentration area	3/01-4/30	0-6; 70-85; 95-105; 18-25; 146-160.7

18a.1 New mitigation measures have been proposed by Deseret and are contained in Appendix 11 of this Final EIS. Also, see Letter Response 36.1.

18a.2 Thank you for your comment. The appropriate state and local agencies will be consulted when the final routes have been selected.

18a.3 The reprinted page 35 in the "minor Text Revision" section of Chapter 2 in this Final EIS reflects this information.

18a.4 As indicated in Item "o" on page 115 of the Draft EIS, Deseret would comply with all state highway permits for transporting heavy equipment.

The map on page 47 should have read I-70. Thank you for calling this error to our attention.

18a.5 Page 118 Item "h" in the Draft EIS is mitigation specified for Federal land management agencies (i.e., Bureau of Land Management, U.S. Forest Service, Bureau of Indian Affairs) only. This mitigation statement does not encompass state highways. Refer to Letter Response 18b.10. Also, please note that the applicant has proposed heavy haul power component mitigation on page 115 Item "o".

18a.6 Refer to Letter Response 18a.5.

18a.7 This information will be used in the decision-making process. See also page 270 of the Draft EIS for traffic analysis of US 40 and Utah Highway 45.

18a.8 This information will be used in the decision-making process.

18a.9 Damage to road surfaces is addressed on page 270 of the Draft EIS.

18a.10 This has been addressed in the Draft EIS, Appendix 11, page R-62. Also, see revised Appendix 11 in this Final EIS.

18a.11 Plant site fire protection has not been identified as a major potential environmental impact; however, a fire control plan is considered in the Draft EIS, page 120 Item "r". Impacts to community fire protection have been considered on page 281 and mitigation is suggested in Appendix 11, page R-63. Since the towns of Vernal and Rangely would experience the major bulk of population growth, impacts to other community fire protection facilities would not be substantial.

Also, see revised Appendix 11 in this Final EIS.

18a.12 Appendix 11, page R-63 of the Draft EIS states in regard to law enforcement, social services, recreation, and fire protection: "Deseret and Western Fuels would coordinate closely with the local communities and would provide assistance as required and mutually agreed upon."

18a.13 Thank you for the information. Please also note the fire control mitigation stipulated in the Draft EIS, page 120, Item "r".

18a.14 This information will be used in the decision-making process.

18a.15 Mitigation of impacts to wildlife caused by transmission line construction of linear facilities is addressed in "Standard Measures," Chapter 2 of the Final EIS. Also, see Letter Response 18a.2.

18a.16 The change has been made in the "Standard Measures" section of Chapter 2 in this Final EIS. Also, table 4-9 gives the acreage of riparian vegetation that could be potentially lost (including alluvial and collector well system).

18a.17 The acreage figure is for the plant site alone. As you point out, the addition of the 100 acres does not significantly change the 4-percent figure of disturbed land.

18a.18 See Letter Response 18a.27. In addition, the major impact would be to the fawning range, not the total range.

18a.19 See Letter Response 18a.15.

18a.20 See Letter Response 18a.15.

18a.21 The "Comparative Analysis of Alternatives" section on page 124 of the Draft EIS introduces table 2-13. Please note the sentence in that section that says, "The impacts mitigated in Chapter 4 have been subtracted from the total impacts described in that chapter and remaining adverse impacts are set forth here." Therefore, where no impacts are discussed, no titles for them appear.

18a.22 See the revised Chapter 3, "Animal Life" section of "Plant Site and Raw Material Supply Systems" in this Final EIS.

18a.23 The text has been revised to reflect a 4-percent loss of antelope fawning area rather than "range". See Chapter 4 of this Final EIS, "Animal Life" section of "Plant Site and Raw Material Supply Systems."

18a.24 Table 4-44 was developed from various sources, most of which came from coordination meetings with regional UDWR offices. Additional information was received from UDWR in a letter dated June 10, 1980.

Because there seems to be discrepancies between the June 10, 1980 letter, the information BLM received from UDWR regional offices, and this comment, it is not certain as to which data should be presented in the EIS. Correct data will be confirmed in coordination meetings to develop a mitigation plan as required by the Fish and Wildlife Coordination Act. This will assure that the most up-to-date information will be used in the final decision-making process and in developing stipulations for required rights-of-way.

18a.25 See Oral Testimony Response 3.

18a.26 The proposed White River Dam could yield up to 250,000 acre-feet annually, according to the referenced report. However, as proposed, only 67,000 acre-feet would actually be depleted by the project.

Response Letter 18a

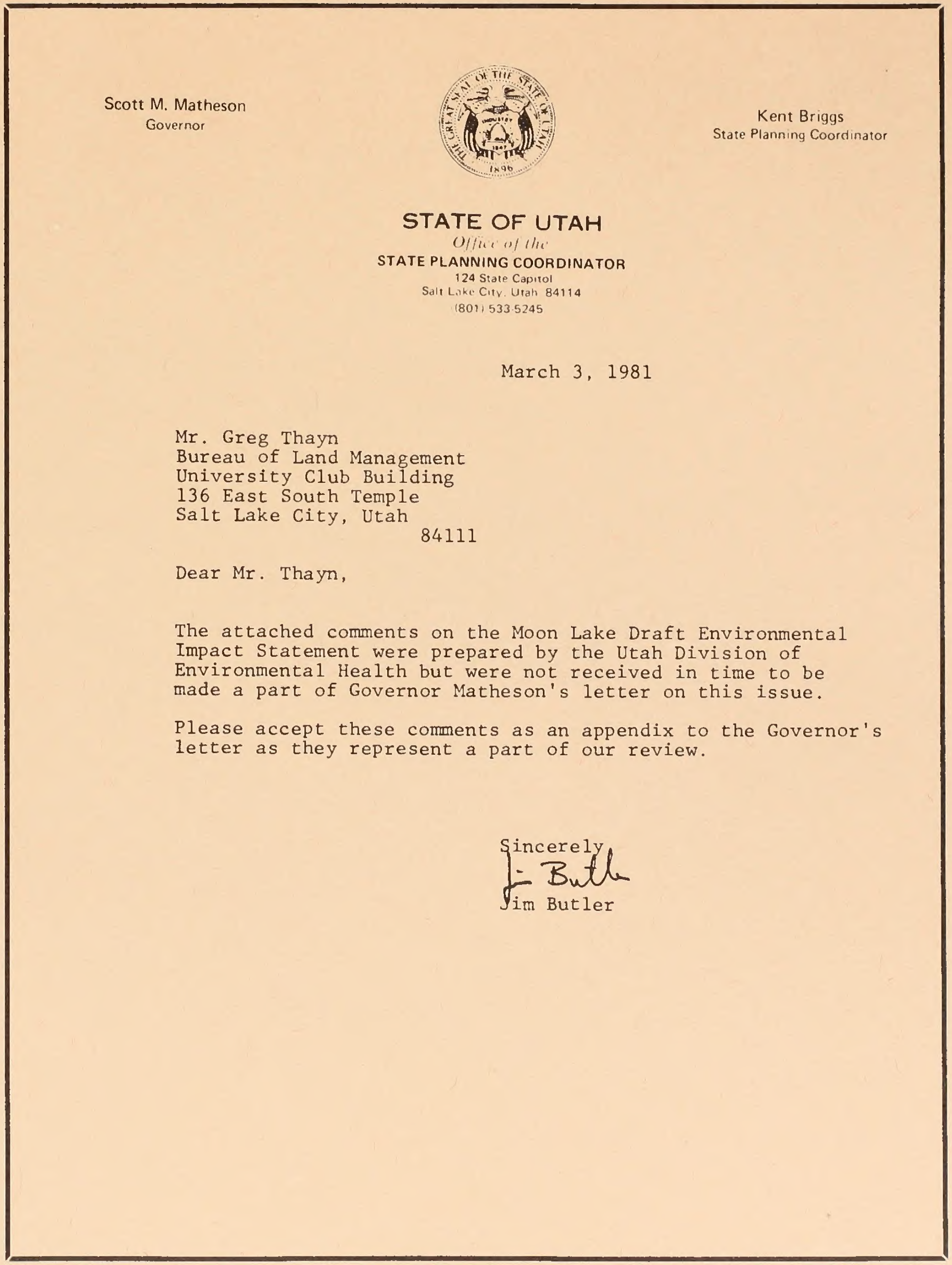
18a.27 An article in the Salt Lake Tribune (Rosenthal, 1981) stated that Colorado's Natural Resources Director and other Colorado officials are considering asking Utah to forge an interstate compact to free White River water for energy projects. Monte Pascoe, Executive Director of the Colorado State Department of Natural Resources said, "Colorado is nowhere near ready to approach Utah on the idea of a White River Compact, but is working hard to determine whether a compact would be feasible." Numbers cited by Western Engineers are subject to change if and when an interstate compact is developed. Also see Letter Response 22j.4.

18a.28 The Biological Assessment of the Effects of the White River Dam Project, Utah on Threatened and Endangered Species states, "observations of 100-400 mm squawfish at the mouth of Piceance Creek may indicate natural reproduction in this area of the White River." The USFWS Coordination Act Technical Assistance Report for the Moon Lake project, discloses that evidence of squawfish reproduction has been recorded about 40 miles above the confluence with the Green River. The study currently being conducted on the White River by USFWS is scheduled to be completed by January 1982. This research should provide important data necessary to answer these unsettled questions.

18a.29 The White River was referenced as being important habitat because endangered species have been observed and captured therein. This should not be confused with "critical habitat" which can only be designated by the Secretary of the Interior or Commerce.

18a.30 The White River Dam Draft EIS was published 2 months prior to the Moon Lake Draft EIS. Consequently, the depletion figures in the Moon Lake EIS are more up to date. However, since publication of Moon Lake, depletion figures have changed further. The White River Dam Final EIS will contain a more accurate list of proposed depletions.

Comment Letter 18b



Scott M. Matheson
Governor

Kent Briggs
State Planning Coordinator

STATE OF UTAH
Office of the
STATE PLANNING COORDINATOR
124 State Capitol
Salt Lake City, Utah 84114
(801) 533 5245

March 3, 1981

Mr. Greg Thayn
Bureau of Land Management
University Club Building
136 East South Temple
Salt Lake City, Utah
84111

Dear Mr. Thayn,

The attached comments on the Moon Lake Draft Environmental Impact Statement were prepared by the Utah Division of Environmental Health but were not received in time to be made a part of Governor Matheson's letter on this issue.

Please accept these comments as an appendix to the Governor's letter as they represent a part of our review.

Sincerely,

Jim Butler

STATE OF UTAH
DEPARTMENT OF HEALTH
DIVISION OF [illegible]

533-[illegible]

February [illegible], 1981

James O. Mason, M.D., Dr.P.H.
Executive Director
801-533-6111

DIVISIONS
Community Health Services
Environmental Health
Family Health Services
Health Care Financing and Standards

OFFICES
Administrative Services
Health Planning and Policy Development
Medical Examiner
State Health Laboratory

MEMROANDUM TO: Alvin E. Rickers, Director
Division of Environmental Health

FROM: Brent C. Bradford, Director
Bureau of Air Quality

SUBJECT: EIS Air Quality Review for Moonlake Power Plant Units #1 and #2

General Comments:

18b.1 1. No on-site air quality data has been collected and existing data collected nearby at the White River Ua and Ub sites have not been designated by BLM as being representative of the Moonlake site for air quality modeling. The Valley Model in the screening mode shows that under worst-case meteorological conditions, 93.6 percent SO_2 controls will be required at the Bonanza site to meet Colorado category I limitations and 94.9 percent SO_2 control will be required at the Rangely site. These levels of controls have not yet been conclusively demonstrated as operationally feasible for full time operations (long term operations). The technology is available, however, to remove the 93-95% SO_2.

18b.2 2. The Bureau of Air Quality recognizes that specific on-site data at Bonanza is preferable for detailed air quality modeling and impact analysis; however, in the absence of such data, the data collected at the White River oil shall Ua/Ub site is considered representative with respect to STAR data for annual modeling input. The Bureau of Air Quality's evaluation of the Moonlake request for permit to construct will require Moonlake to model annual emissions.

Specific Comments:

18b.3 1. Reference page 45, last sentence: Change 90 percent to 93.6 percent. Reason: modeling shows 93-95 percent SO_2 controls will be required to meet Colorado Category I standards.

18b.4 2. Reference page 162, Table 3-1: The NAAQS for ozone is 235 µg/m³ for an hourly average rather than an annual average.

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page 2

18b.5 3. Reference page [illegible]. Table [illegible]. Calculated [illegible] indicate the 24-hour SO_2 PSD increment [illegible] would preclude any further development. Present cumulative [illegible] effects based on 24-hour modeling indicates considerable uncertainty in interaction between Moonlake and the White River oil project. More detailed study on interaction would be desireable.

il

Comment Letter 18b

Scott M. Matheson
Governor

STATE OF UTAH
DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL HEALTH
150 West North Temple, P.O. Box 2500, Salt Lake City, Utah 84110

Alvin E. Rickers, Director
Room 410 801-533-6121

James O. Mason, M.D., Dr.P.H.
Executive Director
801-533-6111

DIVISIONS
Community Health Services
Environmental Health
Family Health Services
Health Care Financing and Standards

OFFICES
Administrative Services
Health Planning and Policy Development
Medical Examiner
State Health Laboratory

February 11, 1981
533-6734

MEMORANDUM

TO: Dennis R. Dalley
Associate Deputy Director
Division of Environmental Health

FROM: Arnold J. Peart *AJP*
Industrial Hygienist
Bureau of Radiation and Occupational Health

SUBJECT: Moon Lake Project - Plan Review

18b.6 Sulfur dioside (SO_2) and Nitrogen Oxides (NO_x) will be produced. Removal of these to meet EPA standards is addressed on page 45. Potential levels inside the plant under normal operation and at times of breakdown of the system is not addressed.

18b.7 Potential exposure during construction to beryllium, lead, mercury, fluorides and asbestos is mentioned on page 247. Pre-monitoring was planned and if any of the above was found appropriate precautions would be needed.

cw

Comment Letter 18b

Scott M. Matheson
Governor

STATE OF UTAH
DEPARTMENT OF HEALTH
Memorandum

TO: Dennis Dalley, Associate Director
Division of Environmental Health

THROUGH: Gayle J. Smith, Director
Bureau of Public Water Supplies

FROM: Michael B. Georgeson, P.E.
Chief, Engineering Section

DATE: February 5, 1981

SUBJECT: Deseret Generation and Transmission
Draft Environmental Impact Statement

18b.8 The description of Vernal's municipal water system is essentially accurate; however, the statement that the Central Utah Project is building a water treatment plant in order to use water from the Red Fleet Reservoir is premature. To our knowledge, there is no firm agreement between the Central Utah Water Conservancy District and Vernal City to build a treatment plant, especially one that would be completed by 1982.

18b.9 We understand that there is currently a law suit between the Ashley Valley Water & Sewer Improvement District and Vernal City. The suit is reportedly to determine the validity of the assignment, by Naples, Glines-Davis and others to Ashley Valley, of water agreements with Vernal City. Until this question is resolved by the courts, we as the Bureau of Public Water Supplies cannot evaluate the capability of Vernal City or the Ashley Valley Water & Sewer Improvement District to deliver water adequate to meet the needs of the increased population resulting from the construction and operation of this project.

18b.10 It appears from the proposed sources of water for the plant that some sort of treatment facility would be required for the potable water system. The plans and specifications for such a treatment process and the distribution system must be approved by the Bureau of Public Water Supplies prior to construction.

es

Scott M. Matheson
Governor

ames O. Mason, M.D., Dr.P.H.
Executive Director
801-533-6111

STATE OF UTAH
DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL HEALTH
150 West North Temple, P.O. Box 2500, Salt Lake City, Utah 84110

Alvin E. Rickers, Director
Room 426 801-533-0121

DIVISIONS
Community Health Services
Environmental Health
Family Health Services
Health Care Financing and Standards

OFFICES
Administrative Services
Health Planning and Policy Development
Medical Examiner
State Health Laboratory

533-6146
January 29, 1981

MEMORANOUM

TO: Oennis R. Oalley, Associate Oeputy Oirector
Oivision of Environmental Health

THROUGH: Calvin K. Sudweeks, Oirector
Bureau of Water Pollution Control

FROM: Brian L. Nelson, Public Health Engineer
Bureau of Water Pollution Control

SUBJECT: EIS, Oeseret Generation-Moon Lake Project

18b.11 The document was reviewed. The statement on water use and disposal contained on page 251 indicates that zero discharge of cooling or process waters is the selected strategy. However, the method of reuse and containment of waters is not presented. A page by page examination may yield some detail showing these methods, however, time does not allow that.

18b.12 From the methods used by UP & L on their Huntington power projects extrapolation could be applieo to Oeseret as follows:

A flow to the disposal pond would be approximately 40 GPM for a 400 MW Generation unit. Accounting for the 42 inch net evaporation rate would require a 20 to 30-acre pond size. The flow here is assuming a maximum reuse and recycle of usable waters.

MEMORANDUM
Dennis R. Dalley
January 29, 1981
Page 2

18b.12 (cont.)

1.
gallons to dispose 40 GPM x 60 min/hr x 24 hr/day x 365 day/yr =21,024,000 gal/yr

2.
evap. 20 acres x 43,560 ft^2/acre x 3.5 ft. evap/yr x 7.48 gal/ft^3=22,808,021 gal/yr

-1,784,016 gal/yr

Some assessment of the disposal method used to comply with a zero discharge requirement should be made. It is possible that spray irrigation might be used to produce crops as in the Huntington UP & L experiements. At any rate a 20-acre pond would have some environmental impact as would any total containment scheme put in effect by Oeseret Generation. The method, along with some assessment of its impact, needs to be addressed in the final draft of the EIS.

clr

Response Letter 18b

18b.1 Thank you for your comment. This information will be used in the decision-making process.

18b.2 The "Air Quality Standards" section of Chapter 4 of the Final EIS states that the Utah Bureau of Air Quality considers the Ua/Ub data representative as STAR data for annual modeling input.

18b.3 The scrubber is designed to achieve 95 rather than 90-percent SO_2 removal. This change has been made on the reprinted page 45 in the "Minor Text Revision" section of Chapter 2, in this Final EIS.

18b.4 The NAAQS for ozone is 0.12 parts per million (ppm) for a 1-hour average using the ppm to μg/m³ conversion equation.

$$\text{Number of } \mu g/m^3 = \frac{\text{molecular weight x No. of ppm}}{0.02404}$$

results in a ozone standard of 239.6 μg/m³ or about 240 μg/m³. The comment pointed out the fact that the O_3 standard is for a 1-hour average rather than an annual average. This has been corrected in table 3-1 of the Final EIS.

18b.5 The modeling showed that maximum increased 24-hour concentrations would be equal to or less than that in 5.0 μg/m³ 24-hour increment. The whole increment may or may not actually be consumed during any 24-hour period. Even if the increment were equaled for a 24-hour period, this would not necessarily preclude other development. Other development could occur as long as it did not impact the same point during the same 24-hour period that the increment is consumed. BLM agrees that more detailed study on interaction would be desirable; however, with the limited data available, more study is not possible.

18b.6 Levels of SO_2 and NOx inside the plant were not identified as a significant issue and were, therefore, not addressed in the EIS.

18b.7 Beryllium, lead, mercury, fluorides, and asbestos would be emitted from the stacks during operation. However, because the Moon Lake permit application was considered by EPA to be complete as of August 6, 1980, the August 7, 1980 regulations requiring Best Available Control Technology and monitoring for these elements would not apply. Chapter 4, "Air Quality", "Trace Elements" section of this Final EIS, has been revised so as not to include the August 7 regulations.

18b.8 The analysis of environmental consequences presented on pages 278 and 290 in the Draft EIS did not assume that the possible water treatment plant associated with the Red Fleet Reservoir would be constructed, nor that it would be completed by 1982. The statement on page 196 regarding that treatment plant should have been prefaced by the phrase "tenatively scheduled." It should also be noted that it is the Central Utah Water Conservancy District not the Central Utah Project that is planning the water treatment plant. See the revised Chapter 3, "Vernal Municipal Water Systems" section of "Socioeconomic Impacts" in this Final EIS.

Response Letter 18b

18b.9 The analysis of environmental consequences presented on pages 278 and 290 in the Draft EIS indicates that the Vernal water and sewer systems are presently inadequate to handle projected population increases. Additionally, planned improvements may not be completed in time to accommodate the projected population increases.

18b.10 It is recognized that the approval you reference would be required of the applicant. The revised Appendix 3 of this Final EIS states: "These lists are not complete. Deseret would also be required to comply with all applicable Federal, State, and local government ordinances and licensing requirements."

18b.11 See Letter Response 20.1.

18b.12 See Letter Response 20.1.

Comment Letter 19

United States Department of Agriculture

Soil Conservation Service

4012 Federal Building
125 South State Street
Salt Lake City, UT 84138

February 26, 1981

Mr. Greg Thayn, Team Leader
Bureau of Land Management
University Club Building
136 E. South Temple
Salt Lake City, UT 84111

Dear Mr. Thayn:

We have reviewed the Draft Environmental Impact Statement for the Moon Lake Power Plant Project Units One and Two. Most the areas where SCS has interest and/or expertise have been adequately addressed.

19.1 One item that should be further addressed concerns taking water from agriculture to use for power production. When the irrigation water supply is taken from agricultural land in an arid climate, native vegetation should be re-established before the water supply is taken to prevent serious wind erosion problems.

19.2 Direct impacts to prime agricultural land are covered but if irrigation water is taken from agricultural land it is possible some prime agricultural land will be indirectly affected. This should also be addressed.

Thank you for the opportunity to review and comment on this project. If we can be of further assistance please feel free to contact us.

Sincerely,

John H Schmidt acting
GEORGE D. MCMILLAN
State Conservationist

Response Letter 19

19.1 The reprinted page 86 in Chapter 2, "Minor Text Revision" section of this Final EIS contains additional information concerning purchase of agricultural water rights.

19.2 Please refer to Letter Response 19.1.

Comment Letter 20

STATE OF CALIFORNIA—THE RESOURCES AGENCY
EDMUND G. BROWN JR., Governor

COLORADO RIVER BOARD OF CALIFORNIA
107 SOUTH BROADWAY, ROOM 8103
LOS ANGELES, CALIFORNIA 90012
(213) 620-4480

February 27, 1981

Mr. Greg Thayn, Team Leader
Bureau of Land Management
University Club Building
136 East South Temple
Salt Lake City, Utah 84111

Dear Mr. Thayn:

We have reviewed the "Moon Lake Power Plant Project Units 1 and 2 Draft Environmental Statement". Of particular interest to the Colorado River Board is the impact that the Project will have on salinity in the lower mainstem of the Colorado River. We conclude, however, that the report fails to adequately address the question of salinity impacts of the proposed facilities on the river system.

By way of background to our comments, we offer the following information on the adopted policy of the Colorado River Basin states towards disposal of salts in industrial discharges. Salinity standards, including a plan of implementation for salinity control, were developed by the seven-state Colorado River Basin Salinity Control Forum in 1975, and each of the seven Colorado River Basin states adopted the standards which were then approved by the Environmental Protection Agency. Included in the plan of implementation were policies calling for no-salt return from industrial discharges wherever practicable and the use of saline water for industrial purposes whenever practicable. Those policies were further reaffirmed by the Basin states when the Forum adopted the "Policy of Implementation of the Colorado River Salinity Standards Through NPDES Permit Program" in 1977 and, in 1980, with adoption of the "Policy for Use of Brackish and/or Saline Waters for Industrial Purposes".

20.1 The report, on page 255, indicates there will be no return flow to the river. However, the report does not describe the method of disposal of wastewater nor does it indicate the amount of cooling water blowdown anticipated. Based on 15 cycles of concentration as stated on page 51 and a cooling tower demand of 15,000 af/yr, we would estimate blowdown to be about 1,000 af/yr. The site plan on page 48 shows evaporation ponds of less than 75 acres. With evaporation rates of 3 acre-feet per acre, pond capacity would be about 225 acre-feet per year. In order to dispose of 1,000 af/yr of cooling tower blowdown and not return any flow to the river, as stated on page 255, evaporation ponds in excess of 330 acres would be required. Please explain this apparent discrepancy.

Comment Letter 20

Mr. Greg Thayn, Team Leader
Bureau of Land Management
February 27, 1981
Page two

20.1 (cont.) The report should adequately discuss the manner in which the proposed facility will dispose of its wastewaters so that the project's operation will be in compliance with the Basin states' policy regarding industrial salt return.

20.2 Although the report does discuss the potential for saline water use from springs of Piceance Creek, there appear to be a number of other saline water sources available in the general area which may be suitable for use by the project. In keeping with the previously-enunciated policy of the Basin states, the report should present as a true alternative the use of saline water sources. The presentation should include data on source salinity, annual quantities of water, and the extra costs associated with utilizing waters from these alternative sources.

It should be noted that saline agricultural return flow water was to be used at San Diego Gas and Electric Company's proposed Sundesert Nuclear Power Station. Salinity of the agricultural return water was in the 1800-2000 mg/l range. Testing by the utility demonstrated that properly-treated blowdown water in the 25-28,000 mg/l range would cause no adverse effects on the efficiency of the plant's cooling system.

We appreciate the opportunity to review and comment on the DEIS.

Sincerely yours,

M. B. Holburt

Myron B. Holburt
Chief Engineer

Response Letter 20

20.1 Deseret would be required to comply with regulations and obtain appropriate state permits. Therefore, there are many aspects of specific plans, designs, and construction schedules that are not discussed or evaluated in this EIS since no significant impact would be expected. Deseret's engineers (March 1981) calculate that 132 gpm would be discharged for evaporation. Based on 36" per year evaporation rate at the Bonanza site, the area needed for evaporation would be 71 acres for unit 1. Unit 2 would increase the output to 200 gpm requiring 108 acres. Present site plans require 156 acres for evaporation ponds because it is desirable to have ponds oversized by a factor of about 2 for surge capacity. The plant site is large enough to accommodate properly sized evaporation ponds, and there would be no off-site discharge of waste waters.

20.2 The use of saline water as a water resource alternative was considered earlier during preliminary studies and scoping processes. It was determined that use of saline water as a total supply was not feasible at this time because of poor quality and low volume. (See page 168 of the Draft EIS for ground water discussion.)

The comment regarding the use of return flows and technology available to use high concentration saline waters is noted.

Comment Letter 21

OFFICE OF THE DIRECTOR

United States Department of the Interior

BUREAU OF MINES
2401 E STREET, NW.
WASHINGTON, D.C. 20241

February 25, 1981

Memorandum

To: State Director, Utah State Office, Bureau of Land Management, Salt Lake City, Utah

From: Director, Bureau of Mines

Subject: Draft environmental statement for the Moon Lake Power Plant Project, Units 1 and 2, Colorado and Utah

Thank you for the opportunity to review this draft. The discussion of minerals at the Bonanza and Rangely power generation sites probably contains enough information on oil and gas leases, but it does not cover adequately the mineral deposits within or near the sites.

21.1 Robert G. Pruitt, Jr., in The Mineral Resources of Uintah County, shows two veins of gilsonite extending into the area designated as the Bonanza site. The Cowboy vein, which extends for more than 13 1/2 miles, is about 1 foot thick in this area. The "E.B." vein, which reportedly is about 5-6 feet wide and extends for about 4 miles, runs parallel to the western end of the Cowboy vein and is about 100 feet north of it.

21.2 Uranium claims have been staked north and northwest of the Rangely site, north of the Deserado coal minesite, and virtually adjacent to the coal storage and loadout area, yet no mention is made of uranium in the minerals section of the draft. The claims are on or near Coal Ridge in secs. 7, 8, 16, 17, and 18, T. 3 N., R. 101 W., and the mineralization is along a contact between a fine-grained sandstone and a thinly bedded lignite in the Iles Formation.

21.3 Overall, the project should be beneficial to any oil shale, coal, and other mining operations in the region because of the increased electrical power that would be available. It is suggested, however, that the final statement include a brief discussion of impacts on gilsonite, uranium, and other mineral resources in the immediate area.

Acting Director

Response Letter 21

21.1 Refer to Letter Response 11.1.

21.2 Only those mineral resources significantly affected by project components have been addressed in the EIS. BLM records do not show uranium claims that could be affected by project components.

21.3 Refer to Letter Responses 21.2 and 11.1. For more information on gilsonite, see Chapter 3 "Minerals" section under general heading "Land Use", in this Final EIS.

Comment Letter 22a

STATE OF COLORADO RICHARD D. LAMM, Governor
DEPARTMENT OF NATURAL RESOURCES
D. MONTE PASCOE, Executive Director
1313 Sherman St., Room 718, Denver, Colorado 80203 866-3311

Board of Land Commissioners
Division of Administration
Division of Mines
Division of Parks & Outdoor Recreation
Division of Water Resources
Division of Wildlife
Geological Survey
Oil and Gas Conservation Commission
Soil Conservation Board
Water Conservation Board
Mined Land Reclamation

March 2, 1981

Mr. Greg Thayne
Bureau of Land Management
136 East South Temple
Salt Lake City, Utah 84111

Dear Mr. Thayne:

The State of Colorado supports the location of the proposed Moon Lake power plant near Rangely, Colorado because of the overwhelming environmental and economic advantages of the Rangely site and because northwest Colorado, especially the Town of Rangely, will receive major socio-economic impacts regardless of the site for the power plant.

We are very much concerned about the inadequacies of the Draft Environmental Impact Statement on the proposed Moon Lake Power Project. We request that the BLM and the REA revise the draft EIS, taking into full account the comments of state agencies (attached) as well as the comments of Rio Blanco and Moffat Counties, the Town of Rangely, the Colorado West Area Council of Governments and the Colorado River Water Conservation District. This letter points out what we feel are major deficiencies in the DEIS and raises several questions which we feel should have been answered in the DEIS.

1. The Preferred Alternative

22a.1 The DEIS states that the BLM has concluded that both Rangely and Bonanza are "viable" sites for the proposed power plant, but that REA and Deseret have concluded that the Rangely site is flawed by "unresolved issues regarding the ability of Deseret to secure a firm and dependable water supply for the Rangely site within the proposed time frame." (p. 128). BLM obviously has concluded that Deseret can secure a "firm", "dependable", and "timely" water supply for the Rangely site. If not, how can it deem the site "viable"?

22a.2 What specific aspects of the water supply trouble REA? One cannot tell from the information contained in the DEIS. One possibility is the assertion, which has been advanced by the U.S. Fish & Wildlife Service but challenged by numerous others, that any depletion of the Green River or its tributaries would jeopardize the continued existence of fish species listed as endangered. Does REA feel the endangered species "problem" is more serious for the Rangely site than the Bonanza site? We would note that if the matter is to be raised at all, then it must be applied even-handedly to Green River, as well as White River, water supply alternatives.

22a.3 Further, if the Green River alternative would involve the purchase of water from Flaming Gorge Reservoir, what would be the environmental impacts of this change and why are they not discussed in the DEIS? Additionally, it is not evident that the Water and Power Resources Service will grant such a sale.

22a.4 A second possibility may be that REA is troubled by the reliability of a water supply at for the Rangely site. As the attached comments of the Colorado Water Conservation Board indicate, we believe that no reasonable case can be made that an adequate, reliable, and timely water supply is not available for the Rangely site. The BLM's own analysis (see p. 83) confirms this conclusion. If the REA disagrees, then on what basis? The DEIS does not discuss this matter.

22a.5 What standards does REA use, as the guarantor of loans for the plant, to satisy itself about the availability of key resources such as water? What, in REA's view, would constitute a reliable, firm, dependable, timely water right?

22a.6 Further, what does REA feel Deseret's ratepayers -- and federal taxpayers, as guarantors of the loan -- should pay for the unidentified "advantages" of using the Green River as a water supply. The DEIS shows (p.R-139) that the Bonanza site, with a railroad and Green River water would cost $38 million more initially and $1.5 million more in annual operating costs than the Rangely site with a conveyor and both the Taylor Draw and Wolf Creek Reservoirs. Does REA have better information indicating that the disparity in cost is less?

22a.7 In addition to cost, there are other factors which would favor selection of the Rangely site. For example, the Bonanza site is likely to have greater cumulative impacts with oil shale projects with respect to air quality at the (p. 249) Dinosaur National Monument. (The DEIS states that it is not possible to determine the extent of these impacts because of uncertainties associated with the White River Shale Project. Did the BLM examine the Detailed Development Plan recently prepared by the WRSP or the proposal submitted to DOE for the Paraho project, which is also close to the Bonanze site? Both have extensive data about air emissions.)

22a.8 The Rangely site also involves much less surface disturbance than the Bonanza site with correspondingly lesser environmental impacts. Selection of the Bonanza site might cause the elimination of an antelope herd which now uses the site (p. 259). The Bonanza site is also much less energy efficient (602×10^9 BTU/yr versus 308×10^9 BTU/yr for the Rangely site, according to the table on page S-135.) These figures, dramatic as they are, seem to be based on an assumption of 121 miles of transmission lines from Rangely to Bonanze. Why are such long lines needed since Rangely is only 25 miles from Bonanza?

22a.9 Usually, a draft EIS includes a discussion of the relative merits of various alternatives and indicates an agency-preferred alternative. Interior Department regulations require the identification of a preferred alternative unless an exception is granted (Federal Register, April 23, 1980, p. 27546, item 4.10.A(2)). In view of the public interest in the selection of a preferred plant site, we urge the BLM to prepare a summary assessment of the merits of the two sites and provide for an adquate period of public comment on this assessment.

2. Mitigation of Impacts

22a.10 Wherever the plant is located, there will be serious socio-economic impacts in communities which lack an adequate tax base for dealing with these impacts. CEQ regulations require that an EIS "include appropriate mitigation measures not already included in the proposed action of alternatives" (1502.14(f)). We feel that the discussion of socio-economic mitigation in this DEIS is inadequate. It is essentialfor the DEIS to discuss a variety of mitigation measures, both those which could be rquired by the BLM or REA and also others ("uncommitted mitigation"), as was done in the recent BLM EIS on coal leasing in the Green River-Hams Fork Region. Also, does the DEIS discuss all of the commitments made by Deseret for socio-economic mitigation? There have been public reports of commitments substantially greater than what is listed in Appendix 11 and the text.

22a.11 We would also note the serious deficiencies, pointed out by the Division of Impact Assistance and Rio Blanco County, in population projections and the estimates of the costs of new socio-economic infrastructure. We are attaching to these comments copies of the Fourth Annual Report of the Division of Impact Assistance, which estimates costs of a full order of magnitude larger than those estimated by the DEIS, and a recent report by our department's Energy Resource Development Plan Project, which projects population figures for Rangely that could be used in estimating the allocation of population between various communities.

22a.12 Finally, we would suggest that if the Bonanza site is finally chosen notwithstanding the clear advantages of the Rangely site, that BLM attach conditions to assure that coal is not hauled by truck over public roads, as suggested in the Green River-Hams Fork Final EIS, page 229, column 2, third paragraph, items (1) and (2). This would not conflict with the expressed desire of Deseret to transport the coal by rail, and it would provide protection against the very significant environmental and economic impacts of on-road trucking, as described in the DEIS.

Comment Letter 22a

3. Need for the Project

22a.13 The need for the second 400 mw unit would appear to spring from projected power requirements of a commercial-scale oil shale industry. Our experience has been that there is a great deal of uncertainty about these power requirements and that some projects -- for example, the Cathedral Bluffs Project -- is planning to generate electricity for export. Perhaps the recent Power Requirements Study contains a discussion of the oil shale industry's demand for electricity. We have requested a copy of this study but have been informed that it is not available except though the Freedom of Information Act. In view of the uncertainty surrounding the oil shale industry's demand for power, we urge the REA to include in the Moon Lake EIS detailed discussion of the need for the second unit and the projected electricity demand of the oil shale industry.

Very truly yours,

Mont Pascoe

D. Monte Pascoe
Executive Director

Response Letter 22a

22a.1 BLM would conclude that the project proposal is viable if Deseret can secure a firm, dependable water supply from the White River system. There are still uncertainties regarding timing, but documents from the Town of Rangely (1980); Colorado Division of Water Resources; State Engineer (1980); Colorado Water Conservation Board (1980); and Vaughn Hansen Associates (1979); all show that there is, in fact, water available in the White River for the Moon Lake power plant project.

For updated information concerning this issue, see the text changes in the "Unresolved Issues" section of the Summary of this Final EIS.

22a.2 Oral Testimony Response 3 discusses the endangered species issue for the Green River water source. REA believes that the endangered species issue is more serious on the White River.

The average flow of the White River (694 cfs) is approximately 84-percent less than that for the Green River (4,360 cfs). A 24-cfs consumptive rate on the White River would have a greater impact on the continued existence of the endangered fish species in the White River.

The USFWS has requested that the Corps of Engineers (COE) defer the Section 404 permitting process until after the completion of its endangered species studies in 1982. The COE Sacramento Office has verbally confirmed this request. Such action could delay completion of the water supply system for the Rangely site (Taylor Draw Reservoir) which will require at least one impoundment for access to a water supply. Impoundments are not required on the Green River to supply water to the Bonanza site.

The USFWS has indicated in their biological opinion (Appendix 23 of the Draft EIS) that purchased water released from Flaming Gorge Reservoir in amounts equivalent to the depletion caused by plant operation would be suitable mitigation and would allow Deseret to proceed with the Moon Lake project. The Water and Power Resources Service has agreed to sell 24 cfs to Deseret on demand. Similar mitigation on the White River would require the purchase of agricultural irrigation water rights. These water rights can not be utilized year-round and, if required, would result in the retirement of production agricultural land. Such action might be contrary to the Secretary's Memorandum No. 1827," Revised Statement on Land Use Policy," dated October 31, 1978.

22a.3 See Oral Testimony Response 3.

22a.4 See Letter Responses 22j.4 and 26.16.

22a.5 It is the opinion of REA that a reliable, firm, dependable, timely water right:

1. is available in sufficient quantity to insure operation of the plant at full capacity when required;

22a.5 (cont.)

2. is a senior right that cannot be preempted by a more senior right that would adversely affect station operation;

3. is capable of being delivered to the plant through the use of facilities (reservoirs or intake structures) that can be functioning prior to the date of commercial operation;

4. is not subject to litigation by governmental or private entities in which an adverse opinion could jeopardize the integrity of the right;

Prior to the advance of guaranteed loan funds, the borrower must submit evidence, satisfactory to the Administrator, that there is a reliable water supply for plant operations.

Also, see Letter Responses 22j.4 and 26.16.

22a.6 Based upon REA's many years of experience with the repayment of guaranteed loans to borrowers, there is no identifiable reason why the Federal Government, as guarantors of the loan, should be impacted as long as repayment of principle and interest is made on a timely basis. REA has determined that the Moon Lake project could be developed at either the Rangely or Bonanza site although fewer uncertainties exist with the Green River water right associated with the Bonanza site. The Deseret Board of Directors, who represents the member cooperatives and ultimately the ratepayers, have determined in their request for a loan guarantee, that the "advantages" of developing the Bonanza site with a railroad and Green River water are worth the additional estimated costs involved.

22a.7 The emissions data in the documents you refer to are preliminary and final emission data would be available only when a PSD permit is issued for those projects.

22a.8 Thank you for your comment. The impact to antelope discussed on page 259 of the Draft EIS is the unmitigated impact. With provision of additional water sources (No. 2, page 318 of the Draft EIS), the antelope herd would not be eliminated. As the comment indicates, the Rangely site would be more energy efficient than the Bonanza site.

The apparent discrepancy in the length of transmission lines needed is not assessed correctly. The Energy Requirements Table on page R-135 of the Draft EIS is correct and is based on one double circuit 345- 138-kV line, two 138-kV individual lines, and one 345-kV line for unit 2 for a total of 122.2 system miles.

22a.9 See Letter Response 26.1.

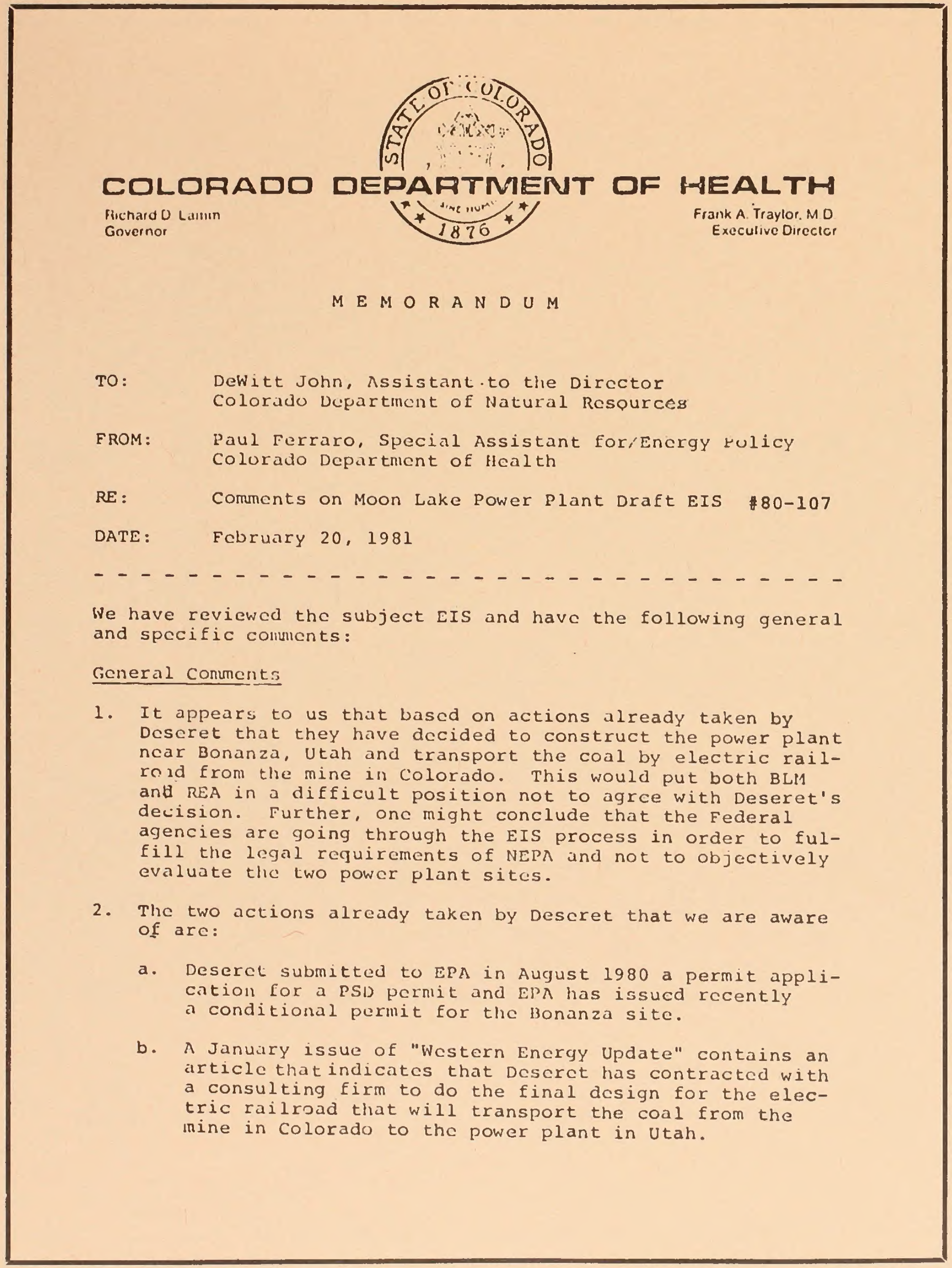
22a.10 Appendix 11 of this Final EIS contains the latest Deseret-proposed mitigation available. Also see Letter Response 36.1 and 36.71.

22a.11 This information will be used in the decision-making process. Also, see Letter Responses 22g.9 and 10; 31.9; and 36.10, 21, 29, 78, and 87.

22a.12 This information will be used in the decision-making process.

22a.13 Table 1-5, based on the 1980 Power Requirements Study (PRS), indicates that Moon Lake unit 2 is needed by 1988. The load forecasts indicate that Deseret will be deficient by 96.2 MW in 1988 and 239.2 MW in 1989 if unit 2 is not operational by then. The PRS includes an estimate that oil shale projects will require electric power of 39 MW in 1984, 66 MW in 1989, and 100 MW in 1994.

Potential oil shale loads obviously contribute to the forecasted Deseret load growth but are not a major factor. With unit 2 proposed to be completed in 1988, Deseret retains some planning flexibility. The decision to commence construction of unit 2 can be delayed until 1983. This will provide extra time to Deseret to determine if load growth occurs as forecasted in the PRS.



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COLORADO DEPARTMENT OF HEALTH

Richard D. Lamm
Governor

Frank A. Traylor, M.D.
Executive Director

M E M O R A N D U M

TO: DeWitt John, Assistant to the Director
Colorado Department of Natural Resources

FROM: Paul Ferraro, Special Assistant for/Energy Policy
Colorado Department of Health

RE: Comments on Moon Lake Power Plant Draft EIS #80-107

DATE: February 20, 1981

- -

We have reviewed the subject EIS and have the following general and specific comments:

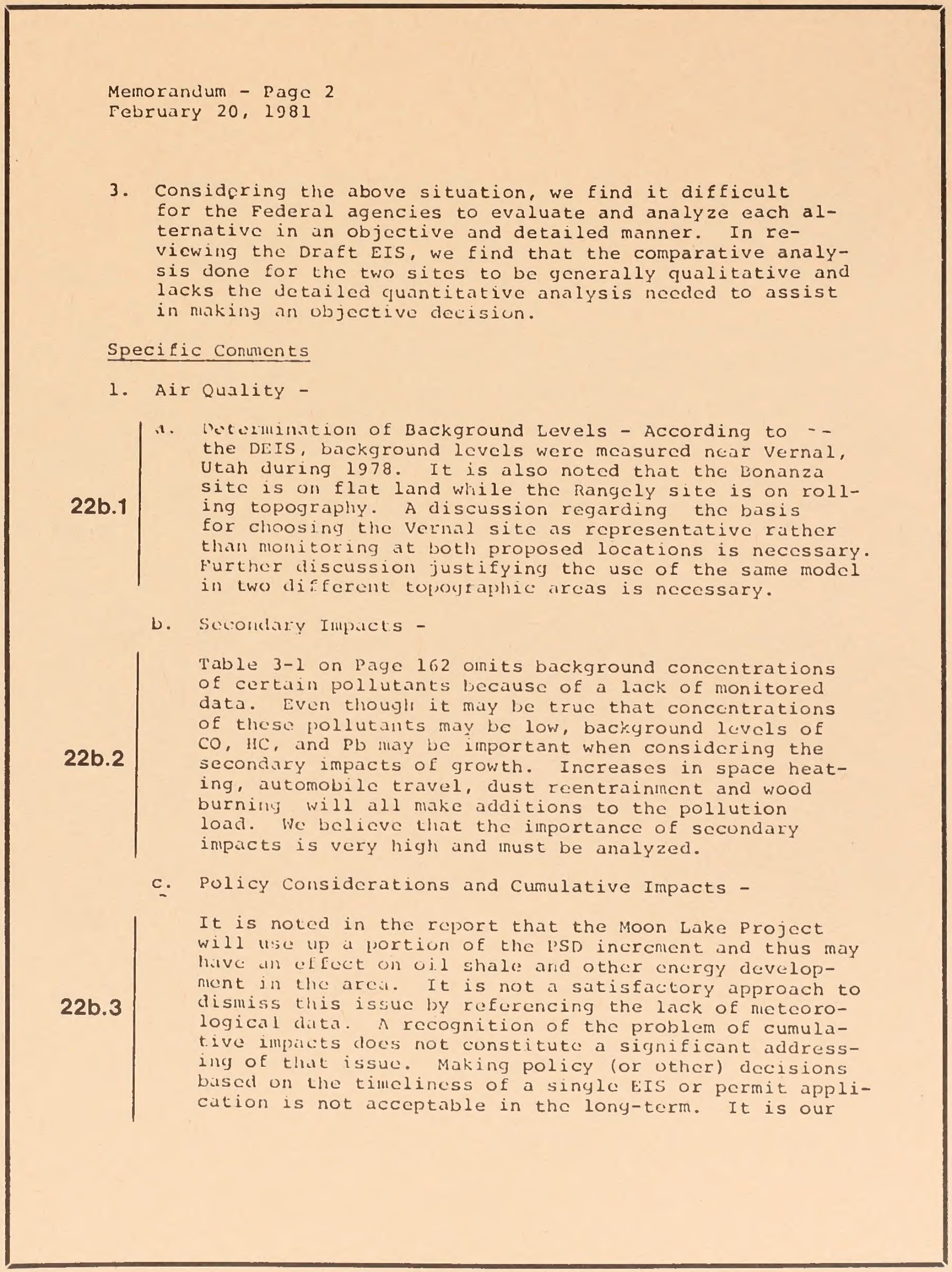
General Comments

1. It appears to us that based on actions already taken by Deseret that they have decided to construct the power plant near Bonanza, Utah and transport the coal by electric railroad from the mine in Colorado. This would put both BLM and REA in a difficult position not to agree with Deseret's decision. Further, one might conclude that the Federal agencies are going through the EIS process in order to fulfill the legal requirements of NEPA and not to objectively evaluate the two power plant sites.

2. The two actions already taken by Deseret that we are aware of are:

   a. Deseret submitted to EPA in August 1980 a permit application for a PSD permit and EPA has issued recently a conditional permit for the Bonanza site.

   b. A January issue of "Western Energy Update" contains an article that indicates that Deseret has contracted with a consulting firm to do the final design for the electric railroad that will transport the coal from the mine in Colorado to the power plant in Utah.



Memorandum - Page 2
February 20, 1981

3. Considering the above situation, we find it difficult for the Federal agencies to evaluate and analyze each alternative in an objective and detailed manner. In reviewing the Draft EIS, we find that the comparative analysis done for the two sites to be generally qualitative and lacks the detailed quantitative analysis needed to assist in making an objective decision.

Specific Comments

1. Air Quality -

   a. Determination of Background Levels - According to -- the DEIS, background levels were measured near Vernal, Utah during 1978. It is also noted that the Bonanza site is on flat land while the Rangely site is on rolling topography. A discussion regarding the basis for choosing the Vernal site as representative rather than monitoring at both proposed locations is necessary. Further discussion justifying the use of the same model in two different topographic areas is necessary. 22b.1

   b. Secondary Impacts -

   Table 3-1 on Page 162 omits background concentrations of certain pollutants because of a lack of monitored data. Even though it may be true that concentrations of these pollutants may be low, background levels of CO, HC, and Pb may be important when considering the secondary impacts of growth. Increases in space heating, automobile travel, dust reentrainment and wood burning will all make additions to the pollution load. We believe that the importance of secondary impacts is very high and must be analyzed. 22b.2

   c. Policy Considerations and Cumulative Impacts -

   It is noted in the report that the Moon Lake Project will use up a portion of the PSD increment and thus may have an effect on oil shale and other energy development in the area. It is not a satisfactory approach to dismiss this issue by referencing the lack of meteorological data. A recognition of the problem of cumulative impacts does not constitute a significant addressing of that issue. Making policy (or other) decisions based on the timeliness of a single EIS or permit application is not acceptable in the long-term. It is our 22b.3

Comment Letter 22b

Memorandum - Page 3
February 20, 1981

22b.3 (cont.) position that the extent to which any developments will occur or be hindered is of importance and must be addressed in the greatest detail.

d. General -

22b.4 - There are differences in the background levels presented in the charts on Pages 162 and 245.

22b.5 - One of the necessary interests is the "real" level of control efficiency; i.e., the percent control efficiency combined with the amount of down time. This could be significant in the identification of future air pollution problems.

22b.6 - It does not appear that sufficient justification was given for the deletion of data on background levels, increment increases, and total concentrations from Table 4-4 and Pages 245-6.

2. Water Quality -

22b.7 The development of this project should have relatively minor long-term adverse effects on water quality. However, significant localized increases in sedimentation could occur if the necessary precautions are not taken during the construction and operation of the mine, mine refuse disposal area, transmission facilities, and support facilities (including roadways).

3. Waste Disposal -

22b.8 It must be recognized that all construction solid wastes, powerplant wastes, mine wastes and wastewater treatment plant sludges must be disposed of in appropriately designated, located and designed waste disposal sites.

PF:ja

cc: Duane Rehborg
Andy Reiman
Stephen O. Ellis
Richard Halvey
Bud Franz
Thomas Looby

Response Letter 22b

22b.1 Air quality monitoring was not done at either alternate plant site. Because the data used was monitored near Vernal, background pollution concentrations used in the screening models were higher than they would have been at the plant sites, thus allowing for a worst-case analysis. EPA approved the Valley Model for use in complex terrain and accepted the model for the Bonanza plant site and subsequently issued a PSD permit. If a permit application were received for the Rangely plant site, the Valley Model would be accepted by EPA.

22b.2 During the PSD permit review, EPA considered growth resulting from the proposed project and concluded that impacts to air quality would be negligible (EPA, 1981).

22b.3 BLM agrees that the extent to which developments would be hindered is of considerable importance. We have not dismissed the issue by referencing a lack of data, but meant that without additional data (meteorological and emissions data) a detailed analysis cannot be performed. Deseret has demonstrated to EPA's satisfaction that Moon Lake would not cause any violations of PSD increments. The burden of proof falls on subsequent developers to show that they, in conjunction with Moon Lake and any other existing facilities, would not cause violations of incremental limitations. BLM held a meeting to discuss the implications of increment consumption by Moon Lake. Representatives from the Colorado Department of Health, EPA, the Utah Air Quality Bureau, and the National Park Service attended and discussed the issue. Following the meeting, the cumulative impacts section of the EIS was written and circulated to meeting attendees for comment. None of the agencies indicted that any more analysis could be done with the limited data available. All concurred that future development could be hindered but to an undeterminable extent.

22b.4 Thank you for pointing out this error. Table 4-4 of this Final EIS has been revised.

22b.5 The amount of down time that would occur with the pollution control equipment cannot be determined at this time. EPA and the State where the plant would be located would require monitoring of stack emissions.

22b.6 There was not any missing data on background levels in table 4-4. Annual average concentrations do not appear in the table for either site. No data was collected at either plant site. BLM does not consider any meteorological data collected to date to be representative of either plant site. Results obtained using inappropriate data can produce misleading conclusions. No increases in 3-hour SO_2 concentrations were shown because the Valley Model in the screening mode (considered worst-case analysis) is designed to calculate 24-hour averages only.

22b.7 It is necessary that precautions be taken to reduce localized increases in sedimentation. Chapter 2, "Standard Measures" section of the Draft EIS describes standard Federal agency measures which would minimize or eliminate adverse impacts to the human environment. Endangered fish usually inhabit water that is swift and turbid; therefore, short-term increases in sedimentation should not adversely affect them.

Response Letter 22b

22b.8 Waste disposal is discussed on page 113 of the Draft EIS and in the "Standard Measures" section beginning on the same page. The revised Appendix 3 of this Final EIS states: "These lists are not complete. Deseret would be required to comply with all applicable Federal, State, and local government ordinances and licensing requirements."

Comment Letter 22c

STATE OF COLORADO

OFFICE OF ENERGY CONSERVATION
Office of the Governor
1525 Sherman Street
Denver, Colorado 80203
Phone (303) 839-2507

Richard D. Lamm,
Governor
Joseph H. Zettel
Acting Executive Director

M E M O R A N D U M

TO: Colorado Clearinghouse DATE: February 13, 1981

FROM: David Ford

SUBJECT: Moon Lake Power Project Draft EIS #80-107

The Office of Energy Conservation has the following concerns about the Moon Lake Project that were not completely addressed in the Draft EIS.

22c.1 OEC is concerned about the need for the construction of both 400 MW power units. A more complete evaluation of future power requirements is suggested. Projected energy sales for large commercial and industrial developments, as indicated in the Power Requirement Study, seems largely dependent on oil shale development. Given uncertain synfuel subsidies and the consideration that some oil shale developments can be energy self-sufficient and even power exporters, the dependence on this project for this type of future power demand seems questionable.

22c.2 The DEIS also makes no specific commitments to any energy efficient methods, such as cooperation with other plants, power pooling and wheeling, and effective management techniques to reduce the need for additional electrical generating capacity. The importance of energy conservation, both in internal operations and in total system demand, should be most evident to an energy-producing industry. Developing a rate structure that would provide incentives for energy conservation should be evaluated. The section pertaining to energy conservation in the DEIS states that "consumer attitudes reflect a lack of sense of urgency regarding energy availability and shortages." A non-declining block rate structure using marginal cost pricing techniques would give the consumer a more accurate picture of the energy costs. What steps will be taken to promote energy conservation? Does the power company take any responsibility for providing information to the consumer on how to reduce energy waste? Deseret's load forecasts should consider these possibilities for energy conservation in evaluating future power requirements.

Comment Letter 22c

Moon Lake Power Project
February 13, 1981
Page 2

22c.3 The consideration of energy effieciency should be a priority in selecting the most appropriate site for the location of the power plant. The Rangely site is presented as being the more efficient alternative according to the Energy Analysis in the DEIS. In reference to the Energy Analysis, OEC has some concerns regarding the selection of the major energy consuming systems. Specifically, why was the choice of the Green River water source for the Bonanza site and the conveyor transport for the Rangely site made when other alternatives mentioned would require less energy? Additionally, the energy input required for the transmission lines is stated as 122.2 billion Btu per year for the Rangely site. Is it possible to reduce this requirement by re-evaluating the proposed routes?

22c.4 The energy losses for the plant at either site are more than 32 times the external energy inputs. This information strongly indicates that a more complete examination of co-generation potential is needed. Co-generation possibilities are more likely in the Rangely area due to the proximity of the town site and other developments. Cooperation with future developments in the vicinity could lead to much greater efficiencies. Utilization of this method of reducing the tremendous amount of waste energy within Deseret's own system is more likely at the Rangely location due to the proximity of the facilities.

22c.5 The Rangely location would also be more energy efficient in regard to the shorter commuting distance of the workforce. OEC supports various ridesharing opportunities such as car- and van pooling as a method to reduce transportation energy consumption. These methods would be most effective at the mine site where a majority of the workforce for this project will be employed.

DF:CC:sa

Response Letter 22c

22c.1 Based on the 1980 Power Requirements Study, table 1-5 has been reconstructed. This table now shows the need for Moon Lake unit 1 by March 1985 and the need for unit 2 by 1988.

Oil shale loads are a factor in the forecast of future load growth but not overwhelming. The forecasts include 39 MW in 1984, 66 MW in 1989, and 100 MW in 1994 for service to oil shale loads. The estimates take into account the fact that certain oil shale projects may become self-sufficient regarding electric power. The 1984 estimates provide for supplying three projects; 1989, two projects; and 1994, one project.

With unit 2 proposed to become operational in 1988, Deseret retains some flexibility. It can delay until 1983 its decision to commence construction and see if loads develop as forecasted in the 1980 Power Requirements Study.

22c.2 Pages 108 and 109 and Appendix 9 of the Draft EIS provide details on conservation methods and controls.

Deseret Cooperative members have developed and are promoting conservation programs. Some systems have developed rate schedules, such as elimination of declining block rates or the use of demand meters on residential services, which will encourage conservation.

Deseret, along with its 6 members, and some 22 municipal power systems have organized a power pool which will make the best use of all resources. Future power requirements are being reviewed as a group, not for individual systems.

Conservation programs of all cooperatives are reviewed periodically by REA for adequacy.

22c.3 The reason for presenting the Green River water source for Bonanza and the coal conveyor for Rangely in Table C (page R-138 of the Draft EIS) was because those alternatives are the applicant-proposed and preferred alternatives for each respective plant site. Your observation that there are more energy-efficient alternatives is correct, as Table B, page R-135 shows.

The applicant-proposed transmission system routes were also the shortest and therefore the most energy efficient of the alternative routes analyzed. As stated in the net energy analysis, energy conservation potential is just one of many factors that should be factored into a decision.

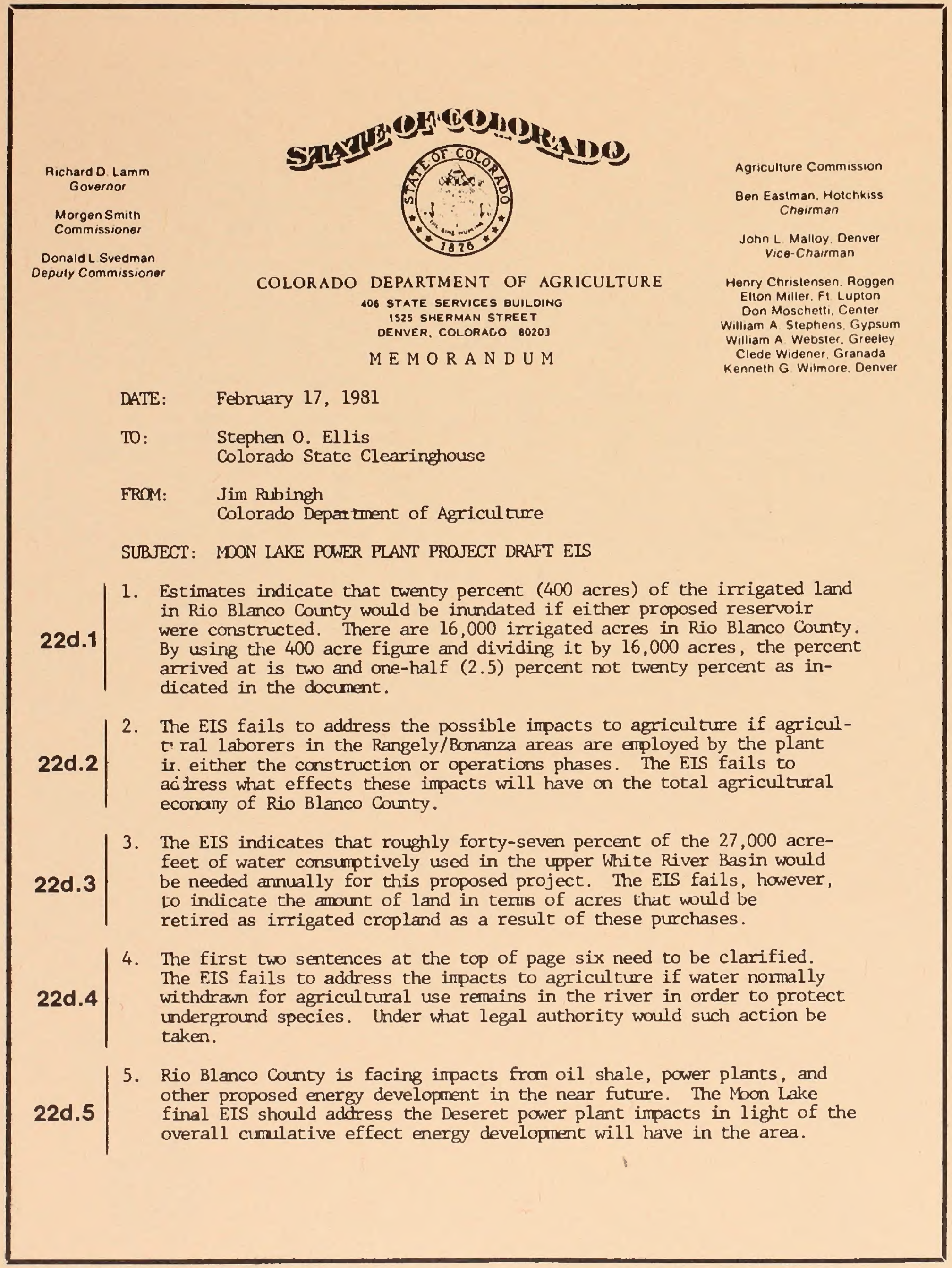
As noted in page 124 of the Draft EIS, the agency-preferred alternative is not the official agency decision. A decision on permitting the project will not be made until at least 30 days after the Final EIS is made available to the public. The rationale for the decision will be made public in a Record of Decision document.

22c.4 Certainly cogeneration could reduce some of the generation losses.

Presently, however, there is no industry in the area of either plant site that could efficiently utilize the residual steam heat (after it passes through the generating turbines). Nor are any specific proposals for new industries in the immediate area known that would be close enough to take advantage of the cogeneration potential.

22c.5 In the interest of energy conservation, the applicant has included the busing of workers from Vernal and Rangely in their proposal (page 115, Draft EIS). The cost of that transportation would, as you indicate, be less if the plant were located at the Rangely site.

Comment Letter 22d



STATE OF COLORADO

Richard D. Lamm
Governor

Morgen Smith
Commissioner

Donald L. Svedman
Deputy Commissioner

COLORADO DEPARTMENT OF AGRICULTURE
406 STATE SERVICES BUILDING
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Clede Widener, Granada
Kenneth G. Wilmore, Denver

MEMORANDUM

DATE: February 17, 1981

TO: Stephen O. Ellis
Colorado State Clearinghouse

FROM: Jim Rubingh
Colorado Department of Agriculture

SUBJECT: MOON LAKE POWER PLANT PROJECT DRAFT EIS

22d.1 1. Estimates indicate that twenty percent (400 acres) of the irrigated land in Rio Blanco County would be inundated if either proposed reservoir were constructed. There are 16,000 irrigated acres in Rio Blanco County. By using the 400 acre figure and dividing it by 16,000 acres, the percent arrived at is two and one-half (2.5) percent not twenty percent as indicated in the document.

22d.2 2. The EIS fails to address the possible impacts to agriculture if agricultural laborers in the Rangely/Bonanza areas are employed by the plant in either the construction or operations phases. The EIS fails to address what effects these impacts will have on the total agricultural economy of Rio Blanco County.

22d.3 3. The EIS indicates that roughly forty-seven percent of the 27,000 acre-feet of water consumptively used in the upper White River Basin would be needed annually for this proposed project. The EIS fails, however, to indicate the amount of land in terms of acres that would be retired as irrigated cropland as a result of these purchases.

22d.4 4. The first two sentences at the top of page six need to be clarified. The EIS fails to address the impacts to agriculture if water normally withdrawn for agricultural use remains in the river in order to protect underground species. Under what legal authority would such action be taken.

22d.5 5. Rio Blanco County is facing impacts from oil shale, power plants, and other proposed energy development in the near future. The Moon Lake final EIS should address the Deseret power plant impacts in light of the overall cumulative effect energy development will have in the area.

Response Letter 22d

22d.1 The text is changed to reflect this comment. See the revised Chapter 4, "Land Use" section, under "Enviromental Impacts of Power Plant Site and Raw Material Supply System Alternatives" of this Final EIS.

22d.2 There are no reliable means to forecast exchange of specific job categories, particularly with indirect jobs resulting from the project. However, it can be expected that many of the project components would require specialized, skilled labor, not usually found in agricultural employment. A high percentage of farmers presently work second jobs off of the farm, and this situation would be expected to continue.

22d.3 Refer to Letter Response 19.1.

22d.4 Refer to Letter Responses 2.1 and 19.1.

22d.5 Please refer to "Cumulative Socioeconomic Impacts", page 298 of the Draft EIS.

Department of Local Affairs
Colorado Division of Planning
Philip H. Schmuck, Director

State Clearinghouse
State Cartographer
State Demographer
Land Use Commission
208 Water Quality

Richard D. Lamm, Governor

M E M O R A N D U M

DATE: February 17, 1981

TO: Steve Ellis
Colorado Clearinghouse

FROM: Philip H. Schmuck
Division of Planning

SUBJECT: Draft EIS on the Moon Lake Power Plant Project
SI 80-107

On March 14, 1980, the Division of Planning commented on the Moon Lake environmental analysis. The Division's concerns in regard to project need and project alternatives, as expressed in that March 14, 1980 memorandum, were not addressed. Consequently, we wish to reiterate those two concerns and make several additional recommendations.

Project Need

22e.1 The EAR states that Deseret's current peak power demand is presently 237 MW and projects that this peak demand will grow to 617 MW by 1998. (Page 1-10 and Table 1-2). No quantitative evidence was provided to substantiate an uncommonly sharp increase in projected peak power demand. The draft EIS did not address this issue, except to state "The power projections seem reasonable...." (EIS, P.1). But the increased projection of power demand far exceeds the Utah population projection increases quoted on the same page of the draft EIS, thereby leading us to question the power projections.

22e.2 In order to meet its projected peak power demand, Deseret proposes to build a two-unit station with an 800 MW gross output. Construction of an 800 MW generating station by a generation and transmission cooperative with a present peak power demand of 237 MW does not appear to be a capital-efficient action on the part of the proponent. Deseret is now primarily a transmission cooperative, generating only 3.5 MW of its power demand. While we fully support the provision of adequate power for anticipated growth in the area, we do not support a Deseret plan to become a net power exporter through wheeling agreements with neighboring utilities. Explanation and justification of plant capacity sizing and

22e.2 (cont.) estimates of surplus power that would be subject to wheeling agreements were not included in the draft EIS and should be addressed in the final EIS under an expanded statement of need.

Project Alternatives

22.e.3 Load management techniques such as alternate costing methodologies are widely recognized and often highly cost-efficient methods to reduce a utility's peak demand, thereby diminishing or deferring the need for capital consumptive facility investments. Neither the EAR or EIS state whether or to what extent Deseret has adopted load leveling provisions such as rate structure alternatives to a traditional declining block rate. The final EIS should include a discussion of these matters and explore the extent to which load management techniques represent a non-structural alternative which could result in downsizing the maximum capacity of the proposed power station.

Project Location

22e.4 The Division of Planning remains concerned that the stack emissions from either plant site will degrade visibility at Dinosaur National Monument. The Division is particularly concerned that the Bonanza site, the preferred alternative, "would probably" produce more frequent visibility impacts at DNM than the Rangely site (EIS, P. 130). The Division is similarly concerned that the cumulative air quality impacts resulting from construction of the plant at the Bonanza site and oil shale development appears from data in the draft EIS to be more severe than the cumulative impact with the Rangely site alternative. Since other locations than Bonanza or Rangely are available to the applicant, the Division of Planning considers it unwise and short sighted to select a power site location that could foreclose future oil shale activity -- especially since future oil shale activity is one of the demand sources used to justify the need for the facility. Power plan location, we wish to point out, is more flexible than the location of oil shale processing facilities; for this reason alone the Division of Planning cannot support plant construction at the Bonanza site.

Financial Considerations

22e.5 The draft EIS recognizes and analyzes the fiscal inequities and revenue shortfall that would result to Colorado localities as a result of plant construction at the Bonanza site.Siting of the plant at Bonanza would cause Rio Blanco County to experience annual shortfalls of $302,000 to over one million dollars during the six year period analyzed in the EIS (page 295). In addition to the reasons cited above, the Division of Planning is opposed to use of the Bonanza site in the absence of an interjurisdictional tax sharing agreement that would equalize these substantial fiscal inequities.

PHS/amn

Response Letter 22e

22e.1 A new 1980 PRS has been completed and approved by REA. Chapter 1 of this Final EIS has been revised to reflect the new information. The study indicates that the demand for electric power in the service areas of Oeseret's members will grow from 178 MW in 1979 (actual experience) to 955 MW in 1994. While population projections would have a bearing on this load growth, the bulk of the additional load forecasted is to supply large power loads (oil shale pilot and developmental operations, coal mines, uranium mines, pipeline pumping, etc.).

22e.2 With its purchase of a 100.4-MW share of the UP&L Hunter Unit 2 to supply its cooperative members, Deseret is currently capable of generating 103.9 MW of its power demand. (Please refer to table 1-5 in this Final EIS.) Oeseret may have surplus power available in 1985, 1986, 1988, 1989, 1990, 1992 and 1996. If forecasts prove accurate, Oeseret will be deficient in 1987, 1991, 1993, 1994, 1995, and 1999. Deseret needs capacity in 1985 and 1988 to meet its members' load growth. The timing of system additions is based on forecasted load growth. The size of the units are based primarily on engineering judgments. Oeseret's financial operation would be enhanced if temporary surplus power could be marketed in 1985, 1986, 1988, 1989, and 1990. At this time, however, there are no assurances that surplus power will be available.

22.e.3 The 1980 PRS, which was just completed by Oeseret and approved by REA projects a high continued load growth in the cooperative service area. This study supports the need for this unit in the time frame scheduled.

Oeseret, as well as several of its members, have in effect a single kilowatt hour rate, thus encouraging conservation by moving away from the traditional declining block rate. Load management programs are in effect throughout the Deseret service area.

22e.4 This information will be used in the decision-making process.

22e.5 It is recognized that there would be fiscal inequities if the plant were constructed at Bonanza. There are negotiations under way between the concerned parties/agencies to mitigate those projected inequities to their mutual satisfaction.

Comment Letter 22f

COLORADO STATE DEPARTMENT OF HIGHWAYS

February 25, 1981

Philip H. Schmuck, Director
Colorado Division of Planning
520 State Centennial Building
1313 Sherman Street
Denver, Colorado 80203

Dear Mr. Schmuck:

The Colorado Department of Highways has completed its review of the Draft Environmental Impact Statement for the Moon Lake Power Plant project and has the following comments.

22f.1 The Moon Lake DEIS does not, as requested in the work plan, present equivalent data for both plant sites. The Bonanza site data indicates few transportation problems, however, if similar data were presented on the Rangely site, similar minor transportation problems might be shown.

22f.2 The applicant should have presented this parallel level of information as requested a year ago. When we considered the early data during the scoping process, it appeared that transportation impacts would be generally equivalent in type. However, the Rangely site requires coal haul over a shorter route.

22f.3 Should the preferred alternative (rail) for transporting the coal be charged, further analysis of the impacts to the State Highway system would be required. The greatest impacts would occur if Deseret decided to truck the coal on the highway system. This would result in roadway deterioration, a greater number of accidents, and increased noise levels. As it presently stands, there will be some increased traffic from work trips and shipment of construction materials but no significant impacts. However, we encourage the busing of workers to and from the mine and plant to minimize impacts.

Thank you for the opportunity to review this document.

Very truly yours,

Harvey R. Atchison
Director
Division of Transportation Planning

By
Barbara L. S. Chocol
Manager
Impact Evaluation Branch

KK:rp

Response Letter 22f

22f.1 The off-highway truck haul route from the Deserado Mine to the Rangely site is described on page 78 of the Draft EIS. The road would be about 5 miles long, unpaved, and designed specifically for 23- or 150-ton capacity coal trucks. With this new road, no interference with existing traffic would be expected.

Major transportation-related impacts from the Bonanza site have been identified on pages 269 to 270 of the Draft EIS. Equal analysis and level of detail does not necessarily mean equal impacts.

22f.2 Please see Letter Response 22f.1.

22f.3 Concerns noted in the comment are analyzed on pages 269 to 270 of the Draft EIS. This analysis concludes that these transportation impacts are significant. Deseret proposes the busing of workers from Vernal and Rangely to the plant site. (See page 115, Item "m", in the Draft EIS.)

Comment Letter 22g

STATE OF COLORADO

DIVISION OF IMPACT ASSISTANCE
Department of Local Affairs
1313 Sherman, Room 523
Centennial Building
Denver, Colorado 80203
Phone (303) 839-2674

Richard D. Lamm
Governor
Paula Herzmark
Executive Director
Steve Schmitz
Director

MEMORANDUM

TO: Stephen O. Ellis
Colorado Clearinghouse

FROM: Steve Schmitz

DATE: March 2, 1981

RE: Division of Impact Assistance's Comments on Moon Lake D.E.I.S.

General Comments

22g.1 The Division of Impact Assistance is deeply concerned about the quality of the DES as applied to socio-economic issues. In our view the draft is so defective in its analysis of the socio-economic issues that another draft statement should be prepared by BLM and REA before the agencies proceed to a final environmental statement.

22g.2 As the agency charged with assessing impacts to growth communities, we were particularly disappointed by the absence of mitigation measures to be used in Colorado (if the Bonanza site is chosen) or in Utah (if the Rangely site is chosen). As we had indicated earlier to the reviewing federal agencies, the development patterns and relationships between northeast Utah and northwest Colorado are crying out for a solution.

Mitigation Analysis

22g.3 The State would urge BLM and REA to assess necessary mitigation measures, even those which cannot be attached to a federal right-of-way or license. In so doing, the federal agencies, states and communities will know which impacts can be addressed and which are unavoidable. This is particularly important in view of the potential problems that may occur by virtue of a plant being located in one state with a sizeable portion of the population connected therewith living in another state.

22g.4 We would call your attention to Section 1502.14 of the CEQ regulations in which the agency is required to provide a clear basis for choice

22g.4 (cont.) among options by the decision-maker and public and to include appropriate mitigation measures not already included in the proposed action or alternatives.

22g.5 Section 1505.3 provides that mitigation and other conditions established in the environmental impact statement shall be implemented by the lead agency or other appropriate consenting agencies. The section further provides that the lead agency shall:

1. Include appropriate conditions in grants, permits or other approvals;
2. Conditioned funding of actions on mitigation; and
3. Upon request, inform cooperating or commenting agencies on progress and carry out mitigation measures which they have proposed and which were adopted by the agency making the decision.

The DES is silent on such issues. How will the taxing disparities be resolved? What mechanisms are available to the governmental jurisdictions to mitigate these impacts: What can Deseret do to eliminate or mitigate these impacts: Nothing is more important than these issues as applied to this project. Rather than vague, unresponsive replies, the DES should have included detailed, precise ways to address this problem.

Population Projections

22g.6 The Division of Impact Assistance questions the population projections used by the OES which are based on the Burns and McDonnell's gravity model. We have reviewed John S. Gilmore's critique of the model and agree with his conclusions. Although we have not had sufficient time to do a detailed assessment of the likely population projections, we believe that the Burns and McDonnell figures are below the anticipated impacts that will occur in Colorado (particularly if the power plant is located in Utah). We know that Rangely's current availability of community services will be a major factor in determining the allocation of workers from both the plant and mine site. We also know that Rangely will be able to tool up quickly to provide the kinds of amenities that are offered by larger communities which will attract workers from both the coal mine and power plant. It is obvious that the Burns and McDonnell model gives insufficient weight to distance factors. Particularly disturbing are the figures set forth in Tables 4-19 and 4-21 in which it appears that distance factors are almost totally ignored. We question

22g.6 (cont.) the assertion that some 40 percent of the workforce associated with the Deserado Mine will travel each day to Vernal. Nor do we feel that over 80 percent of the operational workforce at a Bonanza Plant will choose to live in Vernal.

22g.7 Perhaps the reason these figures are so unsatisfactory is that the OES fails to apply correctly the model itself. Our evaluation shows that the figures were derived based on the present Rangely population, not the population in place at the time the workers arrive. This clearly tilts the figures toward Vernal when in reality Rangely's expanding population at the time the workers arrive will present an equally strong attraction (e.g., see Table 4-12, 9,300 persons in Rangely; 11,025 persons in Vernal by 1984).

22g.8 The OES also misses the mark with respect to a number of other population issues. A prediction that local labor will comprise 30 percent of a workforce is contrary to experience of similar large-scale energy facilities in their region. Skilled workmen are unlikely to come from either Vernal or Rangely and we anticipate a large influx of skilled workers from other areas. Substantial immigration will also occur because of the relatively low unemployment in northeastern Utah and northwestern Colorado. Careful examination of the possible use of construction workforce camps (CWC) during the construction phase should be in the OES; CWCs would undoubtedly affect the allocation of population to both Vernal and Rangely, as well as the multipliers used to predict population.

Cost Projections

22g.9 The Division of Impact Assistance has recently submitted to the Colorado Legislature its 1981 "Fourth Annual Report--Summary and Status Report of the Mineral Lease and Severance Tax Fund." We have utilized standards and costs now prevalent in the energy industry in Colorado. We find that the cost estimates set forth in the OES for providing county services ($725.17 for Uintah County and $1,005.87 for Rio Blanco County) is totally contrary to all current thinking on the subject. In the above mentioned Fourth Annual Report, Appendix B, page 30 and page 44 we set forth our best projections for anticipated capital and operating costs. Our figures, which we believe are conservative, estimate approximately $10,800-$11,000 per person for capital costs, and an additional $1,020-$1,030 per person for annual operational costs. These tables include most of the public services that would be required from the counties or towns in the region. It is imperative that the subject tables be drastically revised to reflect the realistic impacts that will occur.

22g.10 As our Fourth Annual Report indicates, extensive grants have already been made to Rio Blanco County and the Town of Rangely in anticipation of growth that would occur from the oil shale industry. We believe that this excess capacity could serve Deseret in the immediate future with respect to the initial location of its workers from both the mine and the power plant. At the same time, we would expect that Deseret would pay its own way with respect to the utilization of these services, particularly when the population of the oil shale industry increases and Rangely becomes one of a number of communities that will service that industry. Accurate cost estimates, divided between the town of Rangely, Dinosaur, and Rio Blanco and Moffat Counties, should be included in the Environmental Statement so as to give the reviewer an opportunity to know where the greatest cost will occur and what kinds of mitigation can accompany these costs.

Revenue Projections

22g.11 It is virtually impossible to assess the accuracy of the revenue projections set forth in the DES, particular Tables 4-20, 4-22, 4-23. Although we sense that the revenue projections anticipated for Colorado from the mine and/or power plant are inflated, it is difficult to confirm this suspicion because of the new total absence of the figures and assumptions to support the tables. Although Appendix 20, Table D gives certain preliminary cost estimates for the plant site, coal transportation system, and water resource, the table fails to specify what portion of these systems would be located in each state and county. Moreover, there are no cost estimates for the Deserado mine. Until these figures are included in the DES or at least referenced, we cannot accept the accuracy of the tables.

22g.12 The DES further confuses this analysis by indicating that severance tax money is available to mitigate a number of these impacts. In the above-mentioned Fourth Annual Report, we itemize how our severance tax money has been spent over these past years. We hasten to add that of the total severance tax revenues of $472,000 projected on page 281, only 7-1/2 percent of that amount would be allocated directly to Rangely and Rio Blanco County based on the Colorado severance tax statute. Any additional severance tax allocations would be evaluated by the Department of Local Affairs, and would be weighed against competing demands from other counties and cities throughout Colorado.

Impacts to Dinosaur and Moffat County

22g.13 Because the DES has not allocated cost and revenue projections to different political subdivisions, we do not know what costs may be

22g.13 (cont) experienced by the Town of Dinosaur and what potential revenues are available to Dinosaur to mitigate such impacts. Since Dinosaur is geographically close to both the mine and power plant, we feel that such an analysis is extremely important.

Detailed Comments

22g.14 Page 5. The DES accurately states that the analysis does not account for personal property tax and sales tax. This is an obvious defect in the analysis. It would be interesting to note the extent to which property taxes and sales taxes partially offset the operational expenses associated with impacts to the respective counties and communities.

22g.15 Page 14. Rio Blanco County is the beneficiary of ad valorem taxes associated with the Deserado Mine. Rangely, by law, is not entitled to share the tax base of the Deserado Mine.

22g.16 Page 14. Significant allocations of collective coal severance taxes from the Deserado Mine to Rangely and Rio Blanco County is unlikely. This statement reflects a lack of understanding as to how the Colorado coal severance tax is allocated between the state's Severance Tax Trust Fund and the Local Government Severance Tax Trust Fund.

22g.17 Page 24. It is interesting to contrast the statements of the Utah State Engineer, Dee C. Hansen (Appendix 2), with comments appearing on page 24 of the DES. Mr. Hansen states that, "I would be very reluctant to approve a water filing of the nature which you describe since both the coal mine and the power plant would be located within the State of Colorado. The only possible benefit to the residents of the State of Utah would be the possibility of some eastern Utah residents driving to Colorado to work at the plant or the coal mine. The present policy the State of Utah would not warrant the approval of such a water right. One only needs to examine Figure 1-1, page 17, to see that the service area of the Deseret Generation Transmission Cooperative is primarily directed to residents of the State of Utah. We wonder whether the State Engineer of Utah would now be willing to reassess his reluctance to provide water to a Rangely plant in view of the obvious benefits to Utah.

22g.18 Page 24. The fourth item listed under major scoping issues states: "How tax base would be used to mitigate impacts." Apparently, for whatever reasons, the DES does not focus on this issue.

22g.19 Page 35. We find it remarkable that the DES does not describe the shortest access route from the town of Rangely to the Bonanza site. Interestingly, on page 47, this route is missing. We are referring to the Rio Blanco County Road which extends southeast from Highway 64 to the Utah border and then continues on a Uintah County Road to Bonanza. This route, some 27.7 miles, is currently shorter than existing roads from the Bonanza site to Vernal. While the DES speculates about a potential new road from Vernal to Bonanza, somehow the Bonanza-Rangely road escapes mention.

22g.20 Pages 88, 89. We agree with the comments of John S. Gilmore that power plant employment estimates are historically understated. The material set forth on pages 6 and 13 of the Gilmore analysis attached to the Rio Blanco County DES comments demonstrate the extent to which such population figures have been understated.

22g.21 Page 115. We note that the DES states that Deseret has identified several social and economic mitigating measures that they will or may support (see Appendix 11). DES goes on to state that these measures are not sufficiently quantified or committed to alter the analysis of the socio-economic impacts. It is indeed unfortunate that the DES does not go beyond that to require a detailed quantification and analysis of what mitigation requirements should be forthcoming.

22g.22 Page 132. Comments regarding the sewer and water systems are not consistent with the statistics and figures set forth on page 198 (which indicate that Rangely's new treatment plant will accommodate approximately 10,000 persons).

22g.23 Pages 132-133. The local government impacts section fails to differentiate between county impacts and impacts to communities. As mentioned in the body of our comments, municipalities are not given adequate consideration in the analysis under this section. There must be a separation of analysis between both the costs and revenues for each county and community.

22g.24 Pages 189-201. The state supports the comments set forth by John S. Gilmore and his comments attached to those of Rio Blanco County.

Pages 271-303. The bulk of our comments set forth in the above sections relates to the inadequacies we have found in the socio-economic analysis in chapter 4. We do not repeat those here.

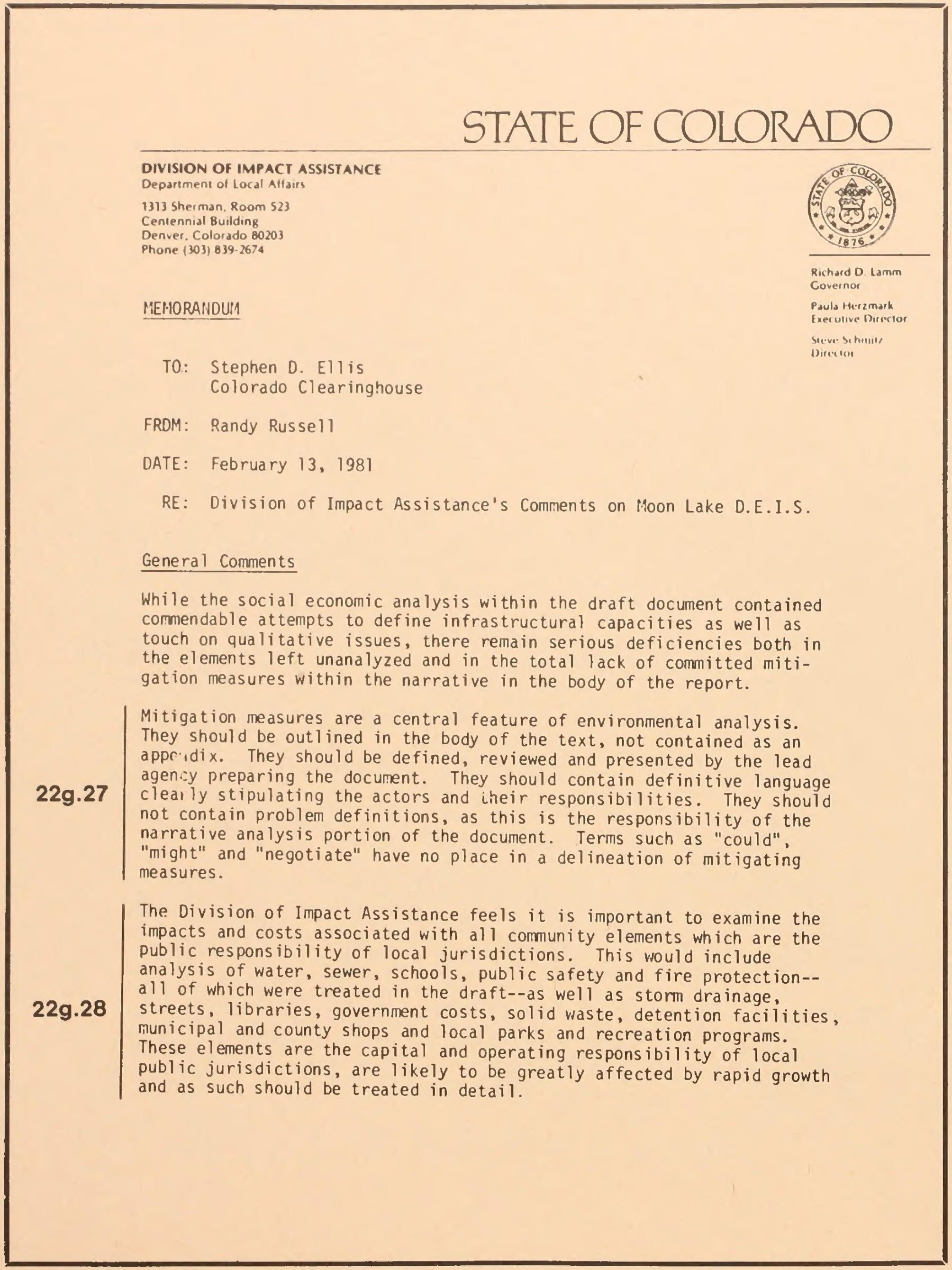
Page R-61, (Appendix 11). The Division of Impact Assistance wishes to highlight one of the introductory paragraphs to Deseret's so-called mitigation plan:

> "The mitigation plan for project responsibility in these areas would be tailored to complement public and private capabilities and would appropriately compensate local governing bodies for the socio-economic impact adjustment costs which exceed their financial ability to provide during the initial stages of project development. As the project approaches commercial operation, revenues derived from taxation of project properties and project-related population could provide sufficient funding for adjustment to costs to include bond retirement and other public debt which may have been acquired for essential capital improvements in anticipation of such revenues."

22g.25 It is indeed unfortunate that Deseret has not sought to spell out in greater detail just how it intends to compensate local governing bodies for the socio-economic impacts. Nothing in the remainder of Appendix 11 gives any indication of how this would be done. The so-called "mitigation plan" commits the company to virtually nothing. We regret to say this is one of the weakest mitigation plans we have seen to date with respect to any energy development in Colorado.

22g.26 Deseret correctly states that "it is not possible to anticipate all things that may require mitigation." But, hopefully, Deseret will take the initiative, working with the federal agencies, state governments and local communities to ascertain and then provide for the real costs of development. Deseret should weigh alternatives available that might minimize some of these costs. Mitigation proposals for such alterations should each insure a comprehensive, effective method of resolving such problems. Unfortunately, Appendix 11 fails in every respect.

SS:kl



STATE OF COLORADO

DIVISION OF IMPACT ASSISTANCE
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Richard D. Lamm
Governor
Paula Herzmark
Executive Director
Steve Schmitz
Director

MEMORANDUM

TO: Stephen D. Ellis
Colorado Clearinghouse

FRDM: Randy Russell

DATE: February 13, 1981

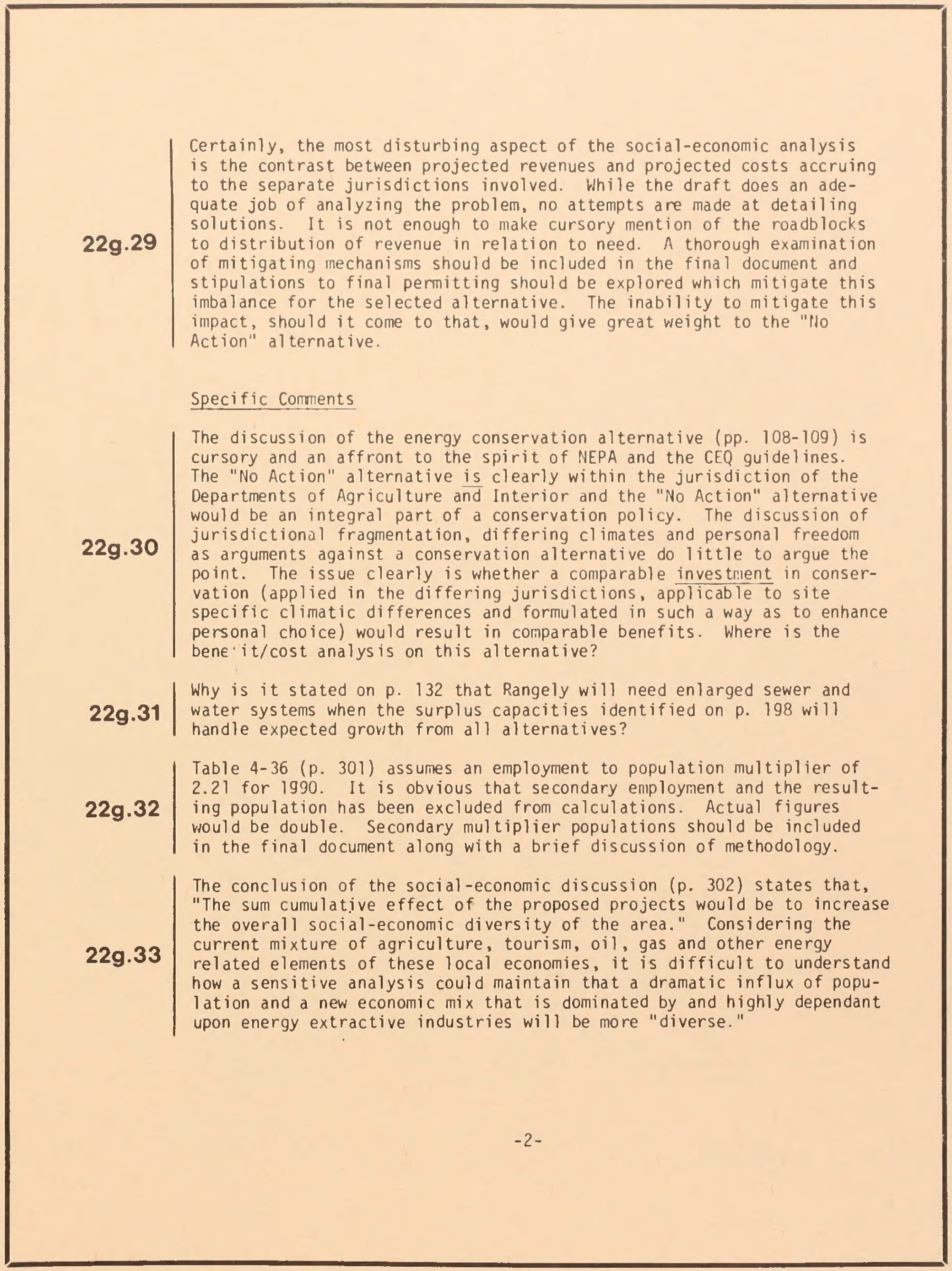
RE: Division of Impact Assistance's Comments on Moon Lake D.E.I.S.

General Comments

While the social economic analysis within the draft document contained commendable attempts to define infrastructural capacities as well as touch on qualitative issues, there remain serious deficiencies both in the elements left unanalyzed and in the total lack of committed mitigation measures within the narrative in the body of the report.

22g.27 Mitigation measures are a central feature of environmental analysis. They should be outlined in the body of the text, not contained as an appendix. They should be defined, reviewed and presented by the lead agency preparing the document. They should contain definitive language clearly stipulating the actors and their responsibilities. They should not contain problem definitions, as this is the responsibility of the narrative analysis portion of the document. Terms such as "could", "might" and "negotiate" have no place in a delineation of mitigating measures.

22g.28 The Division of Impact Assistance feels it is important to examine the impacts and costs associated with all community elements which are the public responsibility of local jurisdictions. This would include analysis of water, sewer, schools, public safety and fire protection--all of which were treated in the draft--as well as storm drainage, streets, libraries, government costs, solid waste, detention facilities, municipal and county shops and local parks and recreation programs. These elements are the capital and operating responsibility of local public jurisdictions, are likely to be greatly affected by rapid growth and as such should be treated in detail.



22g.29 Certainly, the most disturbing aspect of the social-economic analysis is the contrast between projected revenues and projected costs accruing to the separate jurisdictions involved. While the draft does an adequate job of analyzing the problem, no attempts are made at detailing solutions. It is not enough to make cursory mention of the roadblocks to distribution of revenue in relation to need. A thorough examination of mitigating mechanisms should be included in the final document and stipulations to final permitting should be explored which mitigate this imbalance for the selected alternative. The inability to mitigate this impact, should it come to that, would give great weight to the "No Action" alternative.

Specific Comments

22g.30 The discussion of the energy conservation alternative (pp. 108-109) is cursory and an affront to the spirit of NEPA and the CEQ guidelines. The "No Action" alternative is clearly within the jurisdiction of the Departments of Agriculture and Interior and the "No Action" alternative would be an integral part of a conservation policy. The discussion of jurisdictional fragmentation, differing climates and personal freedom as arguments against a conservation alternative do little to argue the point. The issue clearly is whether a comparable investment in conservation (applied in the differing jurisdictions, applicable to site specific climatic differences and formulated in such a way as to enhance personal choice) would result in comparable benefits. Where is the benefit/cost analysis on this alternative?

22g.31 Why is it stated on p. 132 that Rangely will need enlarged sewer and water systems when the surplus capacities identified on p. 198 will handle expected growth from all alternatives?

22g.32 Table 4-36 (p. 301) assumes an employment to population multiplier of 2.21 for 1990. It is obvious that secondary employment and the resulting population has been excluded from calculations. Actual figures would be double. Secondary multiplier populations should be included in the final document along with a brief discussion of methodology.

22g.33 The conclusion of the social-economic discussion (p. 302) states that, "The sum cumulative effect of the proposed projects would be to increase the overall social-economic diversity of the area." Considering the current mixture of agriculture, tourism, oil, gas and other energy related elements of these local economies, it is difficult to understand how a sensitive analysis could maintain that a dramatic influx of population and a new economic mix that is dominated by and highly dependant upon energy extractive industries will be more "diverse."

Comment Letter 22g

22g.34

Appendix 11 - "Proposed" Mitigation

1. Why does it state here that revenues "could" meet costs? This isn't supported in the text.

2. Contacting housing developers is not mitigation.

3. Use of prepayment of severance taxes for sewer and water in Rangely would preclude their use for other important public needs. Where is the analysis of total costs, needs, and methods to provide for those needs. This sporadic identification of only a few concerns coupled with a few solutions further qualified by equivocating terminology and a promise to negotiate represents a shotgun approach to mitigation. A much more detailed, comprehensive analysis needs to be undertaken for inclusion in the FEIS.

4. Why is there a discussion of a history of planning for a proposed new road "to the Bonanza plant site" in a document which is supposed to be considering the two alternatives equally?

5. For law enforcement, social services, recreation and fire protection:

   - Why does the appendix lump these specialized needs together?

   - Cite sources for stating these services are at satisfactory levels.

   - Cite sources for stating these services can be expanded and detail the revenue sources which would allow this.

RR:kl

-3-

Response Letter 22g

22g.1 See Letter Response 36.19.

22g.2 A proposed mitigation plan has been submitted by Deseret and is included in this Final EIS, Appendix 11.

22g.3 See Letter Responses 36.1 and 71.

22g.4 See Letter Responses 36.1 and 62.

22g.5 See Letter Responses 36.1, 36.71 and Appendix 11 of this Final EIS.

22g.6 See Letter Responses 36.19, 36.77, and 36.101. The responses to these comments point out that distances were considered in the appropriate manner. According to Mr. Charles R. Henderson, Director of the Uintah Basin Energy Planning Council, Vernal (1981), "Uintah County is preparing to construct a paved road from the Moon Lake power plant to Ashley Valley and Vernal which will be faster, safer, and a shorter distance by 10 to 15 miles than the road to Rangely, Colorado." This road has been surveyed.

22g.7 See Letter Responses 36.69 and 36.77.

22g.8 See Letter Response 36.74.

22g.9 See Letter Responses 36.78 and 36.29. The annual per capita cost estimates of $725.00 for Uintah County (Uintah Basin Association of Governments, 1980) and $1,005.87 for Rio Blanco County (Rio Blanco County Assessor, 1980) were provided to BLM by the respective county governments. It should be clarified here that the figures referred to in the comment represent the total cost of financing a community, not specifically impact costs nor costs related specifically to the energy industry. The premise of any government entity is that it is financed by its constituents. No government depends upon employees within its boundaries to provide the total cost of government services. Such a suggestion does not include the premise of government finance as well as all the revenues paid by or related to its constituents such as local property tax, sales tax, per capita share of State and Federal income taxes, per pupil allocations from the state, business taxes, tax fees, user fees, license fees, revenue-sharing, and, in the case of Colorado, coal severance tax distributions, Impact Assistance allocations, and Oil Shale Trust Fund allocations.

This admission is made in the Colorado State Department of Local Affairs Summary and Status Recport of the Mineral Lease and Severance Tax Fund (1981), page 32, "The estimates given here are for total costs. No internalization or pass-through revenue sharing programs or funding mechanisms are considered."

In reference to Rangely in particular, the Colorado West Area Council of Governments prepared a memorandum on January 22, 1980 (CWACOG, 1980a) in which they state:

> "Since most of Rangely's infrastructure and service capacities are either at a 9,000 person level or can be readily expanded to meet the projected peak population level, then it appears that with only a moderate level of continuing front end assistance in certain support service areas, the community will be able to adequately handle development of the Moon Lake plant and mine, in addition to absorbing a moderate level of oil shale induced impact."

Response Letter 22g

22g.10 See Letter Responses 22g.9, 36.78, and 36.87. Existing loans and bond obligations of special districts, like the sewer district, would be partially paid for by the mill levies these special districts apply to project-owned property. The same applies to operating costs. In addition, a significant portion of existing obligations would be paid by in-migrating project-related employees who would have to pay utility hookup and user fees. To the extent the indebtedness is spread into the future, the project and its employees would pay for a more-than-proportionate per capita share of those facilities.

This information has been included in this Final EIS, Chapter 4, "Local Government Impacts, unit 1 and units 1 and 2 scenarios, under general heading, "Socioeconomic Impacts".

22g.11 Chapter 4 of this Final EIS contains revisions of tables 4-20, 4-22, and 4-23. Additional tax revenue data is also presented in Appendix 11, figures 2, 4, 5, and 6.

22g.12 BLM was aware of this, and did not imply that the local governments would receive the total amount stated.

The text has been revised to reflect this information. See the revised "Socioeconomics" section of "Unresolved Issues" of the Summary in this Final EIS. Also, see the revised Chapter 4 "Local Government Impacts" (both unit 1 and units 1 and 2 scenarios) of "Environmental Impacts" sections of "Power Plant Site and Raw Material Supply System Alternatives" in this Final EIS.

22g.13 See Letter Responses 13.1, 13.8, and Appendix 11 of this Final EIS.

22g.14 See Letter Responses 36.29 and 36.70.

22g.15 The text has been revised to reflect this information. However, Rangely would receive revenue through special districts for school, hospital, cemetary, etc. See the revised "Socioeconomics" section of "Unresolved Issues" of the Summary in this Final EIS.

22g.16 See Letter Response 22g.12.

22g.17 BLM and REA cannot reply in behalf of the Utah State Engineer; however, the two Federal agencies independently recognize that the citizens of the State of Utah could benefit through the use of electricity that would be generated at a Rangely power plant. Nevertheless, the Federal government does not have authority to make that determination and must recognize that it is uncertain if the State water policy would allow transfer of water from Utah to Colorado for the Moon Lake project.

This alternative was presented on page 80 of the Draft EIS as technically feasible. Analysis of its affect on the flows and salinity of the Green River is presented on pages 253 to 254 of the Draft EIS. The impacts of a pipeline route for this alternative are analyzed in Chapter 4 and summarized on table 2-13 (page 140) of the Draft EIS. The controversial nature of the alternative is noted on page 14. The letters in Appendix 2 were included to demonstrate that this alternative may be legally possible if Deseret were to demonstrate to Utah citizens that they would benefit from transfer of the water. Rather than ruling out this alternative, this information demonstrates that it may be a viable alternative.

Response Letter 22g

22g.18 See Letter Responses 22g.9 and 10; 31.9 and 10; and 36.71, 78, 87.

22g.19 As you state, the distance from Rangely to the Town of Bonanza by the route you describe is approximately 27.7 miles. However, workers would still have to travel approximately 12 miles from the Town of Bonanza to reach the plant site via the proposed access road. Thus, the one-way distance from Rangely to the Bonanza plant site is approximately 39.5 miles which excludes the distance from Vernal (approximately 38 miles along existing county roads and U.S. Highway 40). The reprinted page 35 in the "Minor Text Revision" section of Chapter 2 of this Final EIS reflects this information.

The routes presented in figure 2-5 of the Draft EIS are the proposed heavy-haul routes, not commuting routes.

22g.20 See Letter Response 36.76.

22g.21 See Letter Responses 36.1, 36.71 and Appendix 11 of this Final EIS.

22g.22 Page 198 of the Draft EIS indicates that these systems could presently serve 5,000 to 6,000 persons, but were designed to be expanded to 10,000-person capacity, as needed.

22g.23 See Letter Response 22g.10 and 36.78.

22g.24 This information will be used in the decision-making process.

22g.25 See Letter Responses 28.4 and 36.1. Appendix 11 of this Final EIS contains information on Deseret's proposed socioeconomic mitigation plans.

22g.26 See Appendix 11 of this Final EIS and Letter Responses 22g.9 and 10.

22g.27 See Letter Responses 36.1 and 36.71.

22g.28 See Letter Responses 22g.9 and 10; 31.9 and 10; 36.78, and 87.

22g.29 See Letter Responses 36.1 and 36.71 and Appendix 11 of this Final EIS.

22g.30 It is recognized that energy conservation holds considerable potential for reduction of future power demands. The energy efficiencies of existing and future structures, electrical devices, machinery, and appliances are being improved. Acceleration of this trend will require a further reordering of energy priorities and policies, personal attitudes, and lifestyles. Additional legislation to mandate or provide incentives for conservation and load management, especially during peak consumption periods, would be required of state and local governments.

The initiatives enumerated in the Draft EIS will, if applied, result in substantial energy savings. At this time, the potential amount of such savings to Deseret's load demand is unquantified. Energy studies in other areas, however, indicate that reductions in energy consumption and peak demand would be about 9 percent from 1991 projections with high conservation scenarios (USDI, BLM, Allen-Warner Valley Draft EIS, 1980).

While conservation efforts by Deseret consumers are desirable and would contribute to easing the regional and national energy situation, in and of themselves they would not enable Deseret to meet its projected future demands without construction of the Moon Lake project. Therefore, conservation alone

22g.30 (cont.) does not constitute a viable alternative to construction of the proposed project.

Cost-benefit analysis of a conservation alternative would require numerous assumptions, projections, and estimates with differing levels of reliability. In addition, the areas where Deseret provides electric service are geographically, politically, and economically diverse. These factors preclude reliable cost-benefit analysis with meaningful levels of confidence. Therefore, such analysis was not included in the EIS.

22g.31 See Letter Response 22g.22.

22g.32 Secondary employment and population impacts were considered in the analysis. See Letter Response 36.76.

22g.33 As the economic base and population of an area grows, there is corresponding growth in the area's ability to support more commerce and services. The construction and operational work forces and revenues resulting from the proposed project would add to the economic and population growth of the affected communities. Therefore, it is reasonable to assume that the project would increase the socioeconomic diversity of the area as indicated in the EIS.

22g.34 The information presented in Appendix 11 of the Draft EIS represents Deseret's initial thinking on economic mitigation. Appendix 11 has been revised by Deseret and greater detail is provided in this Final EIS.

A-95 APPLICATION REVIEW

FROM: Colorado Geological Survey
1313 Sherman Street, Room 715
Denver, Colorado 80203
303-839-2611

TO: Colorado Division of Planning
1313 Sherman Street, Room 520
Denver, Colorado 80203

Application Number: EIS - 80-107

Project Title: MOON LAKE POWER PLANT

Project Location: NW COLORADO

Date of Review: JANUARY 13, 1981

FEB 13 1981

RECOMMENDATIONS:

☐ APPROVAL:

- ☐ Geologic conditions in the area should not adversely affect the project as described in the application.
- ☐ Adverse geologic conditions in the area have been evaluated by qualified geotechnical personnel, and proper mitigation measures have been recommended and should be followed.

☐ CONDITIONAL APPROVAL:

- ☐ Subsurface investigations should be conducted by qualified geotechnical personnel prior to design and construction to determine what mitigation measures, if any, will be necessary due to the following geologic conditions that are known or suspected to exist in this area:
  - ☐ Swelling soils or rock
  - ☐ Collapsing soils
  - ☐ High or seasonally high ground-water table
  - ☐ Potential development of a perched ground-water table
- ☐ Hydrologic investigations should be conducted by a qualified hydrologist to determine surface drainage requirements.
- ☐ Earthwork should be supervised by qualified geotechnical personnel to assure the stability of cuts and adequate compaction of fill and backfill material.
- ☐ Subsurface conditions in excavations should be evaluated by qualified geotechnical personnel to assure proper foundation design and utility installation.
- ☐ Structures or utilities proposed for rehabilitation or reconstruction should be evaluated by qualified personnel to determine if adverse geologic or hydrologic conditions have resulted or may result in damage to the structures or utilities, and determine if the cost of mitigation warrants rehabilitation or reconstruction of all or any part of this project.
- ☐ The suitability of standard septic systems should be evaluated by qualified personnel
- ☐ Adequate erosion and sedimentation control measures should be implemented.

☐ DISAPPROVAL:

- ☐ The nature and location of this project warrant a thorough geotechnical investigation, and to our knowledge, this investigation has not been conducted.
- ☐ The following geologic hazards are known or suspected to exist in the project area, and to our knowledge, their effect on the proposed project has not been evaluated:
  - ☐ Avalanches
  - ☐ Landslides
  - ☐ Rockfalls
  - ☐ Mudflows
  - ☐ Debris fans
  - ☐ Unstable or potentially unstable slopes
  - ☐ Seismic effects
  - ☐ Radioactivity
  - ☐ Ground subsidence
  - ☐ Other:
- ☐ The nature and location of this project warrant a thorough hydrologic investigation to determine the flood plain limits along ________________ (River, Creek, Gulch) and any adverse effects of this project on other properties along the drainage; to our knowledge, this investigation has not been conducted.
- ☐ All or part of the project area lies within the 100-year flood plain of ________________ (River, Creek, Gulch), and to our knowledge, neither the possibility of flood protection nor the adverse effects of this project on other properties along the drainage have been evaluated.

ADDITIONAL COMMENTS: We have no comments on the above referenced EIS

REVIEWED BY:

Walter R. Junge, Engineering Geologist

If there are any questions by any concerned individuals, please contact me or another member of our staff.

STATE OF COLORADO
Richard D. Lamm, Governor
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE
Jack R. Grieb, Director
6060 Broadway
Denver, Colorado 80216 (825-1192)

March 2, 1981

TO: Stephen O. Ellis
State Clearinghouse

FROM: C. J. Grand Pre
Wildlife Program Specialist

RE: Moon Lake Power Plant Project

The Colorado Division of Wildlife has reviewed the above cited Moon Lake draft environmental statement and finds it to be a well written, informative document. The BLM deserves much credit for their efforts in researching, writing and presenting this proposal.

Upon review, their appears to be two issues of critical importance that has not been addressed in sufficient detail. First, an acceptable plan for the mitigation of wildlife impacts has not been presented, particularly as it relates to the Rangely Project (Wolf Creek and Taylor Draw Reservoirs). Second, the baseline wildlife data necessary for an intelligent, thorough examination of the Rangely Power Plant alternative and associated reservoirs is absent. For example, no authoritive information on flows in the White River and associated impacts, Bald Eagle populations and MuleDeer migration has been presented.

We view these issues to be glaring deficiencies in the draft and in need of much further investigation. Further elaboration of these topics will be presented in a point-by-point analysis of the draft.

CJG:k

Enclosures

COMMENTS

22i.1 P. 5, para. 3, There will also be an increased need for additional Division of Wildlife personnel and equipment at an initial cost of approximately $50,000.00/year. This is no small cost and should be addressed in the socio-economics and recreation sections. (i.e. Table 2-13, p. 142 and p. 158, and p. 281 and p. 304).

22i.2 P. 5, para 8, The possible loss of a Golden Eagle nest was identified on page 260, para. 6.

22i.3 P. 6, para. 1, line 2. This statement is inaccurate. Irrigation withdrawal only occurs in the summer - not all year. The affects of reduced flows upon T & E fish have yet to be investigated or modeled. Winter flows may be critical.

22i.4 P. 6, para. 5. The CDOW has gone on record as stating that the identification of coal reserves should be an integral part of the EIS. The lifetime supply of fuel for the power plant should be identified so all transportation impacts may be evaluated.

22i.5 P. 6, para. 9. Wildlife mortality will increase substantially with the advent of trucking.

22i.6 P. 7, para. 1, There will also be a significant loss of critical mule deer winter range, disturbance to a major mule deer migration route and inundation of an important Bald Eagle roost by the proposed Wolf Creek Reservoir. Much more emphasis needs to be given these impacts.

22i.7 P. 7, para. 2, Does 400 acres of irrigated land in Rio Blanco County represent 20% of the total? This appears to be a major error.

22i.8 P. 8, para. 1, last line, not necessarily correct - delete.

22i.9 P. 9, para. 1, Inundation of flood plains may be an important consideration recognizing that highly erodable soils exist in the area. With the extreme rate of siltation, the proposed reservoirs are relatively short-lived.

22i.10 P. 9, para. 4, How will riparian acreage be mitigated?

22i.11 P. 13, para. 2, These statements oversimplify the water rights issue. Any water right holder can protest a change in use and point of diversion regardless of priority.

22i.12 P. 45, para. 8. At first glance, there appears to be a discrepancy in the numbers on water consumption (see fig. 2-7 & statement on p. 50). It would help to elaborate.

22i.13 P. 53, last para., This is an unfounded statement. Unsuitability criteria have not been developed to date.

22i.14 P. 66, para(s) 2 & 3. Trucking of coal could have enormous impacts - none, of which, have been adequately addressed. The definition of coal sources and methods of transportation appear critical.

Comment Letter 22i

22i.15 P. 66, last para., Figure 2-20 implies that the railroad will be fenced. This could have monumental impacts upon mule deer and antelope populations. This issue must be explored in further detail.

22i.16 P. 70, Overland conveyor, Rangely to Bonanza. This transport alternative has not proven to be technically feasible. There is no solid evidence that total fugitive dust control is possible. It is uncertain how wildlife would react to the conveyor system.

22i.17 P. 77, Truck Transportation. No estimate is available on vehicle/wildlife mortality with this form of transportation but it is expected to be huge.

22i.18 P. 83, para. 6. The rate of siltation for Taylor Draw and, presumably, Wolf Creek Reservoir is extremely high, thus, limiting their usefulness. Their potential value as a cold/cool water fishery is unknown. Flushing either reservoir can be expected to impact any and all fisheries downstream.

The construction of one or both reservoirs will serve as a barrier to fish migration and interrupt flow regimes, which may or may not be mitigated by the addition foreign water. Changes in temperatures, salt load and suspended solids will also occur. All these issues need to be investigated.

22i.19 P. 86, line 2. It is sheer speculation that Deseret would be able to purchase existing water rights. If, for example, agricultural water rights were purchased it would be necessary to get a change-in-use designation, which may be difficult. Furthermore, maintenance of a conservation pool for recreation and fisheries habitat will be required as mitigation to offset environmental and social impacts. Recognizing, once again, the rate of siltation, we find that either reservoir has limited use for wildlife.

22i.20 P. 86, para. 6, Yellow Jacket water may or may not be available. In any case it will be subject to much discussion and negotiation. Several wildlife impacts are involved in this proposal. The possibility for Yellow Jacket water seems remote, at the present.

22i.21 P. 86, Wolf Creek Reservoir. Based on present data, it appears that this reservoir will have profound impacts upon wildlife. Many acres of critical mule deer winter range will be lost, a major Bald Eagle roost site and feeding area will be inundated, T & E fish severely impacted and a major mule deer migration route lost or disturbed. These issues must not be ignored.

As stated previously, changes in water temperature, salinity and flows have yet to be examined.

22i.22 P. 113, para. 1-2, It has been our experience that fly ash is a very unstable dust-like material that is highly susceptable to wind erosion. It is relatively inert and makes a poor soil medium. We do not feel that the impacts associated with the collection, handling, transportation, and disposal of this material has been seriously considered. We would certainly like to know how fugitive particles will be controlled and what steps will be taken to reclaim the disposal site as indicated? We believe this section has been treated far too lightly.

Comment Letter 22i

22i.23 P. 113, last para. (a & b), The mitigation measures proposed by the applicant for fugitive dust handling and suppression are not definitive. Suggest further elaboration. See above comments.

22i.24 P. 115, para. K, We disagree that original vegetation species will be lost and cannot be replaced. Several sources of native plant seed are available and should be used.

22i.25 P. 115, para. M, Excellent proposal!

22i.26 P. 116, Para a, The Colorado Division of Wildlife requests the opportunity for involvement in the area.

22i.27 P. 116, para. 5, Use native vegetation for reclamation.

22i.28 P. 117, para. e, All stockpiles be revegetated to prevent wind erosion and to maintain soil integrity.

22i.29 P. 121, para. 2-2, add "wildlife"

22i.30 P. 122, para. ee, It appears that a trade of property would be in the best interests of the general public - as opposed to sale.

22i.31 P. 122, para. ff, Again, a right-of-way seems preferrable to outright sale.

22i.32 P. 126, para I, This is inconsistent with the USF&WS biological opinion. If we read the USF&WS statement correctly, it declares that replacement of water used for the mine only with agricultural rights may not have an effect on T & E species. It does not say that jeopardy would be avoided.

22i.33 P. 130, Table 2-13, Rangely Site. Deer and raptor habitat occupied. Temporary losses expected.

22i.34 P. 132, Table 2-13, Socioeconomics - both sites, additional DOW personnel and equipment necessary at a cost to sports persons.

22i.35 P. 134, Table 2-13, Aquatic. T & E species may impacted with the addition of agricultural water. This is still subject to investigation. We view this misstatement to be a serious error.

22i.36 P. 134, Table 2-13, Add "Terrestrial". Golden Eagles and Ferruginous Hawks may be impacted (see p. 260). Also, there will be a loss of deer habitat.

22i.37 P. 136, Table 2-13, Vegetation. Possible loss of vegetation from coal fines escaping from conveyor system.

22i.38 P. 136, Table 2-13, Animal life. A significant loss of wildlife will occur from vehicular traffic. This issue has been identified in the text. As reported in earlier correspondence, an overland conveyor would reduce wildlife habitat (i.e. construction, maintenance, erosion, fugitive dust, etc.).

22i.39 P. 138, Table 2-13, Aquatic. Each reservoir will change water temperatures, silt load, salt load, flow regimes etc. Further explanation has been provided elsewhere in this memo. Also, add "terrestrial" catogory. A critical Mule Deer winter range will be lost, deer migration route impacted and Bald Eagle roost inundated.

22i.40 P. 171, Para. 4, Add Cottontail rabbits and Mountain Lion.

22i.41 P. 174, para. 5, The Rangely site serves as winter range for Antelope not a summer range.

22i.42 P. 174, last para., No Sage Grouse leks have been documented on the Rangely site. That is not to say none exist since a comprehensive survey has not been conducted.

22i.43 P. 179, Raptor. Goshawks, Prairie Falcons, Rough-legged Hawks and Marsh Hawks have also been reported within the area of impact.

22i.44 P. 181, para. 4, The upper White River supports a significant sports fishery. The lower White River has a limited sports fishery.

22i.45 P. 189, Socioeconomics. Revenue derived by local communities from sportsmen has been totally ignored. The White River basin has continually ranked among the best in the western United States in terms of its wildlife resources. Moneys spent by hunters, fishermen and other recreationists provide a substantial amount of revenue to local business.

22i.46 P. 203, para. 2, Mountain Lion and Bear are "big game" not "small game".

22i.47 P. 203, para. 5, Bald Eagles also utilize natural Mule Deer and small mammal mortality.

22i.48 P. 256, para. 8, The maintenance of Cottonwood riparian vegetation is critical to the preservation of many species of wildlife in Colorado. Riparian vegetative types represent less than 0.2% of all vegetative types within Colorado, yet support approximately 50% of all bird species and nearly 1/3 of all mammalian species. The loss of any riparian vegetation will result in an irretrievable loss of wildlife.

22i.49 P. 259, Mule Deer. If fencing of the railroad is planned, deer and antelope migrations will be interupted and significant decresses in animal populations could result. This issue needs to be addressed.

We disagree that the operation of an electric train would not result in the loss of deer, for surely, the loss of some deer will occur, however, the impact is suspected to be less than that associated with other means of transportation.

We do not concur with the position that the overland conveyor system will not impact deer. It has not been conclusively shown that Mule Deer migration will not be affected.

We also do not agree that losses in Mule Deer winter range will be minimal. Critical Mule Deer winter range in Colorado is in very short supply. The loss of any critical winter range has very important social, economic and environmental implications. This loss of winter range will have a profound impact.

22i.50 P. 260, Sage Grouse. At this time we are not aware of any Sage Grouse leks on the proposed Rangely plant site. However, no intensive survey of the area for Sage Grouse strutting grounds has been conducted to our knowledge.

22i.51 P. 261, para. 1, line 3, T & E species. This statement is completely unfounded -- delete!

22i.52 P. 262, White River. We cannot concur with line 4 of paragraph 2 of this section since no exhaustive research has been conducted. Preliminary research efforts by the Division of Wildlife in 1980 indicate that the White River may be more important to the survival of Squawfish than once thought. More intensive research will be conducted in 1981.

P. 281. To reiterate, demands upon the local wildlife resource is expected to increase dramatically as a result of this proposal. This will require an increased expenditure of state -- DOW moneys, which may well not be offset by increased revenues.

xc: NE Region
Glen Smith
USF&WS
File

Response Letter 22i

22i.1 As stated in the comment, the projected population increases would increase demand for Division of Wildlife Services, thus increasing the costs to your agency. In the analysis, these costs were considered secondary impacts in the affected area. It is also recognized that such associated costs have traditionally been borne by sportsmen fees and general taxation. The fees and tax revenues from the project and the induced population would be expected to cover those costs in this situation.

22i.2 It is not believed that the "potential abandonment" of a nest constitutes an actual "loss of nesting." Golden eagles usually have alternate nest sites which they occupy in the event that their primary nest site becomes unusable. The golden eagle is also protected under the Bald Eagle Protection Act, and mitigation would prevent harrassment or loss of the species. (See the Draft EIS, Appendix 23 for Fish and Wildlife Coordination Act.)

22i.3 The statement in the paragraph does not infer that irrigation withdrawal occurs all year.

The study currently being conducted on the White River by USFWS is scheduled to be completed by January 1982. This research should provide important data necessary to answer these unsettled questions. It is apparent, however, that if the water normally withdrawn for irrigation were allowed to remain in the river, there would be no jeopardy to the species during the summer months. Flows for endangered fish are much more critical during summer months than during the winter. Sufficient flows are important to the spawning, growth, and development of the young fry and fingerlings.

22i.4 It is indicated on page 53 of the Draft EIS that sufficient additional coal for the life of the project is available in Federal coal exploration areas contiguous to the Deserado Mine. There is a possibility that Deseret could acquire that coal, but the Federal government cannot make any commitments at this time. Open market purchase of coal is presented as an alternative on page 66 of the Draft EIS. However, no contracts have been signed between Deseret and coal companies, and it would be speculative to identify a definite source for 20 years in the future.

22i.5 The Draft EIS addresses those wildlife species which are of significant importance or are issues identified in the scoping process. The paragraph you refer to indicates there would be an increase in highway mortality to antelope, sage grouse, and deer, which are the species of major concern. However, we have no data to indicate a base for what is being lost now.

22i.6 The concerns mentioned surfaced in the scoping process. The majority of biologists and conservation officers contacted believe that, because of the actual locations of the winter range, the migration route, and the bald eagle roost, the losses would not be significant. A bald eagle roost would be lost through inundation by the Wolf Creek Reservoir; however, no loss of eagles is expected. The mule deer migration route is near the upper end of the reservoir and, hence, would not prove to be a barrier to migration. The actual loss of critical mule deer winter habitat is small in comparison to the total available in the area. Also, much of the land proposed for inundation is agricultural and has little value as winter forage or cover. However, the view of the Colorado Division of Wildlife that every acre of critical deer winter range is significant, has been dded to the "Terrestrial Wildlife" section of Chapter 4 of this Final EIS.

Response Letter 22i

22i.7 Refer to Letter Response 22d.1.

22i.8 The "Recreation-Related Impacts" section of the Summary has been partially revised. The project-related population increase in Uintah and Rio Blanco Counties would be approximately 3,000 to 5,000 people. The outdoor activities of this number of people in an area approximately 200 miles square, with numerous developed and undeveloped outdoor recreation resources, would not be expected to have significant impact. It is anticipated that impacts would largely be restricted to those facilities close to Vernal and Rangely that are being used at or near capacity and whose use is not limited by management actions (e.g., permits).

22i.9 Impacts from reservoir inundation can be found under the heading "Agriculture", pages 268 to 269 of the Draft EIS. Sedimentation rates are discussed on pages 82 to 84 of the Draft EIS in relation to the feasibility of the Rangely Reservoir project.

22i.10 Please refer to Items "i" and "j" page 118 under "Measures Required of the Applicant by Federal Agencies" in the Draft EIS. The loss of riparian vegetation on the selected plant site and refuse disposal area would not be mitigated.

22i.11 Other water users with priority water rights may be able to develop their water rights with no change in use or point of diversion. Therefore, Deseret may not have an opportunity to protest the subsequent development of the water.

22i.12 The text has been revised to indicate the total amount of water required. See the reprinted page 45 of the "Minor Text Revisions" section of Chapter 2 in this Final EIS.

22i.13 BLM concurs. The reprinted page 53 in the Chapter 2, "Minor Text Revisions" section indicates that the mining suitability of the prospecting areas contiguous to the Deserado Mine has not been determined; however, they will be determined after leases are filed.

22i.14 Impacts from coal transportation alternatives are addressed on pages 259-260 and 269-270 of the Draft EIS. Also, see Response 22i.4 of this letter.

22i.15 Figure 2-20 is not meant to imply that that a fence would be placed along the railroad right-of-way nor are there current plans to include such a fence. The fence was deleted from the applicant's original proposal when the issue of potential deer and antelope loss arose.

22i.16 The section noted in the comment does not deal with impacts or analysis. It is merely a description of the proposed action and alternatives. For analysis and impacts, see Chapter 4, pages 239-317 of the Draft EIS.

22i.17 This section describes the alternatives and does not list impacts. For impacts to wildlife, see page 259 of the Draft EIS.

22i.18 As stated on page 87 of the Draft EIS, the Taylor Draw and Wolf Creek Reservoirs were presented as alternatives on the assumption that, should the Rangely site with the Wolf Creek Reservoir water source be selected, additional design and environmental work would be required. These projects would require separate documents to satisfy NEPA requirements. A biological opinion would be prepared pursuant to Section 7 of the Endangered Species Act, and the U.S. Army Corps of Engineers would complete an assessment of environmental consequences prior to issuing a 4D4 permit.

22i.19 This information will be used in the decision-making process.

22i.20 This information will be used in the decision-making process.

22i.21 See Letter Response 22i.6 of this same letter.

22i.22 The control, collection, handling, transportation, and disposal of fly ash is mitigated in the permitting authority for disposal systems by the State Departments of Health, Water Quality, and Air Quality. This material, as stated in the Draft EIS, would be removed from the plant site and placed in an authorized landfill. On page 113, Item "b" of the Draft EIS, it states that reclaiming of the disposal sites would consist of covering the area with top soil and revegetating with appropriate plant species.

The states' authorizing and control procedures regulate such items as control of fugitive dust, toxic levels, toxic leachate from the disposal site, runoff, and contaminants (if any) to ground water sytems.

22i.23 State-of-the-art methods would be applied and administered by the agency responsible. Specific details would be given and agreed to in the authorizing permit or documents.

22i.24 BLM and REA concur. Chapter 2, "Standard Measures," Item "k" of "Measures Proposed by the Applicant" has been revised in this Final EIS.

22i.25 These measures are proposed by the applicant to help minimize or eliminate impacts.

22i.26 Colorado Division of Wildlife would be consulted in the development of a wildlife mitigation plan that would be used to develop the operating plans mentioned in the comment (see No. 5, page 318 of the Draft EIS).

22i.27 Thank you for your comment. Chapter 2 "Standard Measures" Item "j" of "Measures Required of the Aplicant by Federal Agencies" of this Final EIS has been revised to reflect this information.

22i.28 The text has been revised as suggested. See Chapter 2, "Standard Measures", Item "g" of "Measures Required of the Applicant by Federal Agencies" of this Final EIS.

22i.29 Thank you for the information in the comment.

22i.30 This information will be used in the decision-making process.

22i.31 This information will be used in the decision-making process.

22i.32 Paragraph 3, page R-156 of the Draft EIS states:

> "The PDEIS discussed the alternative of purchasing farmlands holding water rights on the White River in the amount needed to replace the water used for the coal mining activities. If this irrigation water is allowed to remain in the river, the effects of pumping water for the mine would be negligible and would preclude jeopardy to the species."

This opinion was given by USFWS because of the small amount of water involved (note paragraph 1 on same page).

22i.33 The significance of impacts to deer and raptors did not surface as an issue in the scoping process. The best information we have indicates that neither deer nor raptors are prevalent in the site area or use it to any great degree.

22i.34 See Letter Response 22i.1.

22i.35 Addition of agricultural water was not discussed under this section. It was stated that, "if water normally withdrawn for irrigation were allowed to remain in the river, there would be no jeopardy to the species." See Response 32 in this same letter.

22i.36 The table serves as a summary and includes only primary issues. Because of the specific measures protecting the golden eagle nest, the probability of nest site relocation by the one pair of ferruginous hawks, and the low probability of significant impact on the deer herd, these were not pointed out in table 2-13.

22i.37 No vegetation loss is anticipated because of coal fines (dust) being deposited along coal haul routes. The coal fines would most likely, over a long period of time, reduce the pH of the mildly to moderately alkaline soils along the haul routes because of the iron sulfide (FeS_2) present in the coal. Because of the buffering action of the relatively high pH soils, it is expected that there would be little or no loss of vegetation.

22i.38 Table 2-13 of this Final EIS has been changed to include the mortality increase to vehicular traffic. The rest of the concerns in this comment are not included in this summary table for the reasons shown in Letter Response 22i.36.

22i.39 Table 2-13 is a summary table which spotlights major areas of concern. The details about impacts are found within the text in Chapter 4, pages 259 to 263 of the Draft EIS. Also, see Letter Responses 22i.6 and 22i.18.

22i.40 These two species were considered and discussed during the scoping process. Because of the widespread abundance of cottontails and the improbability of significant numbers of mountain lions inhabiting in the area, they were not included in this part of the text.

22i.41 Information gathered from consultants, BLM personnel, and state wildlife agency contacts indicates the opposite is true. If you have more recent surveys or specific data which indicate differently, BLM would like to receive it for evaluation and use in the decision-making process.

22i.42 BLM concurs. Chapter 3 "Animal Life" section under "Plant Site and Raw Material Supply Systems" of this Final EIS has been revised.

22i.43 We are aware of this but in an attempt to keep the Draft EIS from becoming encyclopedic, we have focused only on what was determined to be the significant issues. There are also many other species found in the impact area which, even in a "worst case situation" would not be significantly impacted, and are, therefore, left out of the document.

22i.44 Text has been revised to reflect this information. See Chapter 3 "Recreation" section of "Plant Site and Raw Material Supply Systems" in this Final EIS.

22i.45 Thank you for your comment. This information will be used in the decision-making process.

22i.46 The text has been changed to clarify that in Utah, bear and mountain lion are considered small game, while in Colorado they are considered big game. See the revised Chapter 3, "Animal Life" section of "Secondary Influence Zone" in this Final EIS.

22i.47 Thank you for your comment. The text has been revised to reflect this information. See Chapter 3, "Animal Life" section of "Secondary Influence Zone" in this Final EIS.

22i.48 Thank you for your comment. A new section entitled "Riparian Habitat" has been added to Chapter 4, "Animal Life" section of "Secondary Influence Zone" in this Final EIS.

22i.49 Fencing of the railroad was dropped from the proposal before the Draft EIS was written. It is not a consideration at the present time. Any losses of deer caused by deer/railcar collision should be insignificant and would become negligible with adoption of further stipulations or mitigation measures requiring daylight train runs during the heaviest use periods by deer (winter months).

New data has shown that, because of the terrain and design criteria of the conveyor, a great deal of trestle work would be required to maintain the grade necessary. Some of these trestles, in the major winter use area of deer, would be over 100 feet high. Visits to similar conveyors showed that sound would not likely be an insurmountable problem. Deer would habituate to the system and the actual habitat loss would be negligible when compared to the rehabilitation of the disturbed area. Also, winter habitat losses would be short term and insignificant when compared to the vastness of the winter range available in the area of the proposed conveyor line.

It is agreed that deer winter range is critical; however, the information acquired from CDW and other consultants familiar with the area in question indicated that there is a great deal of winter range available for the low concentration of deer that use it. Therefore, the actual losses of habitat would not sustantially affect the deer herd.

22i.50 We concur. Text revisions have been made in Chapter 3, "Animal Life" section of "Plant Site and Raw Material Supply Systems", of this Final EIS.

22i.51 It is the opinion of some biologists that the reservoirs would be beneficial for both bald eagles and peregrines because they usually prefer water-oriented prey species (eagles: fish and waterfowl; falcon: waterfowl and shore birds). The reservoirs should increase the quantity of these prey base species. Other factors such as the loss of riparian habitat (which provides roost trees and some cover for secondary prey species) are not considered as critical a loss for these very mobile T&E species. When all these factors are considered, the net analysis is that the overall impact of the reservoirs would most likely be beneficial.

22i.52 See Oral Testimony Response 17.

MEMORANDUM

COLORADO WATER CONSERVATION BOARD
J. William McDonald
Director

TO: Dewitt John

FROM: Bill McDonald

DATE: March 2, 1981

SUBJECT: Comments on Moon Lake Power Plant Project
Draft EIS (January, 1981)

Set out below are my major comments on the subject draft EIS.

Page 6, first sentence

22j.1 It is stated here that the withdrawal of water from the White River "could jeopardize the continued existence of three endangered fish species...." However, it is stated on pages 12 and 14 that it is not known whether the withdrawal of water from the White or Green Rivers would jeopardize the continued existence of these species. In light of the latter statement, and in light of the fact that the present research effort of the Department of the Interior's Colorado River Fisheries Recovery Team is prompted by the fact that the status of and habitat requirements of the subject fish species are indeed unknown (see p. 14 again), it would appear that the first sentence on page 6 should read as follows:

> "It is not known if the withdrawal of water from the White River would jeopardize the continued existence of three fish species listed as endangered...."

It apparently is true, as noted in the first paragraph under the "ENDANGERED SPECIES" caption on page 14, that the U.S. Fish and Wildlife Service, "will state," pending the completion of the referenced studies, that withdrawals "could jeopardize the continued existence of these fish." The Service's assertion does not, however, in any way alter the fact that the Service simply does not know whether withdrawals will jeopardize the continued existence of these fish species or not.

Page 5, carry-over paragraph at top

22j.2 While Moon Lake could admittedly perfect legal rights to withdraw and consume water from the Green River by utilizing either its 30 cfs direct flow right or by purchasing water from Flaming Gorge Reservoir, the latter alternative in no way "replaces" water withdrawn by Moon Lake downstream. Flaming Gorge Reservoir simply re-regulates the flows of the Green River--it does not "create" new water. Either alternative must inherently increase the net depletion of the waters of the Green River. The assertion to the contrary made in this paragraph and elsewhere in the draft EIS (e.g., third paragraph at the top of page 80 and page 255) is indisputably wrong. Thus, purchase of water from Flaming Gorge cannot mitigate the alleged endangered fish species problem on the Green River.

22j.2 (cont.) Furthermore, Colorado cannot and will not tolerate any suggestion that the present operation of Flaming Gorge be changed for the benefit of endangered species to the detriment of the conservation storage of water. Federal statutes which specify the manner in which Flaming Gorge, as a storage unit of the Colorado River Storage Project (CRSP), is to be operated must be held inviolate.

Page 13, first full paragraph

22j.3 It is implied here and elsewhere in the draft EIS (e.g., fourth paragraph on page 78, and first paragraph on page 83) that the State of Colorado may have an obligation to guarantee certain amounts of water to the State of Utah from the White River. Colorado has no such legal obligation.

Page 13, fourth full paragraph.

22j.4 It is asserted here (see also pages 78 and 83) that the State of Colorado may be obliged to satisfy all or some of the Winter's Doctrine water right claims of the Ute Indian Tribe in Utah. Colorado has no such legal obligation.

Page 83 ff.

22j.5 The discussion of the White River as a source of water supply for the Rangely site (see also pages 12-14) is replete with assertions that the proposed Taylor Draw Reservoir of the Rangely Project would not develop a reliable water supply nor make that supply available in a timely manner. However, the data in the draft EIS itself demonstrates that this is not the case.

All studies of the water supply available in Colorado from the White River conclude that a reliable supply can be developed by the Taylor Draw Reservoir and, in turn, the Wolf Creek Reservoir. This is the case even though those studies assume the maximum plausible development of upstream conditional decrees senior to those of the Rangely Project and even though they assume, despite no legal basis for such, that certain deliveries are made at the Colorado-Utah state line.

The timing issue is solved, as data in the draft EIS amply demonstrates, by the availability of direct flow rights on an

Comment Letter 22j

22j.5 (cont.) interim basis until Taylor Draw is completed. Furthermore, it should be noted that the Taylor Draw Reservoir can be on-line as soon as any other alternative since the issues concerning fish species which are listed as endangered, not construction schedules as such, are holding up all development proposals on both the White and Green Rivers. Finally, it should be noted that the use of direct flow rights on an interim basis (see page 86) would not leave Moon Lake 2,200 acre-feet per year short of water. This is because the first unit does not consume 17,470 acre-feet. Taylor Draw and Wolf Creek will be constructed long before the full 17,470 acre-feet is needed.

BM/sd

cc: State Clearinghouse
Dennis Montgomery

Response Letter 22j

22j.1 See Oral Testimony Response 17. No determination on jeopardy has been made for the Rangely Reservoir project. See the revised "Coal Source Alternatives" section in the "Summary" of this Final EIS. (Also see Letter Response 26.16.)

22j.2 See Oral Testimony Response 3.

22j.3 See Letter Response 22j.4.

BLM and REA believe that it would not be prudent to assume that Colorado could essentially dry the White River at the Colorado-Utah line without initiation of legal action by the State of Utah or other concerned water users and agencies within Utah.

22j.4 See the "Unresolved Issues" section in the Summary of this Final EIS.

If the Ute Tribe is entitled to water from the White River to satisfy Winters Right claims that it may have, it is likely that any such claims would be chargeable to Utah's apportionment of Colorado River basin waters because the Indian reservation is within Utah. This would be consistent with the precedent established by the United States Supreme Court in Arizona v. California, 373 U.S. 546, 83 Sup. Ct. 1468 (1963). Thus, while the water probably would not be chargeable to Colorado it does not necessarily follow that Colorado would be free to take action within its boundaries and upstream from the reservation that would prevent the tribe from satisfying any Winters Right entitlements that it may have. It is doubtful that the courts would permit use of water in Colorado that would nullify legitimate Winters Right entitlements of Indian tribes located in Utah. Of course, the precise issue has not been considered by the courts and, until or unless it is, or the matter is otherwise resolved, uncertainty regarding it may continue.

Whether Colorado is obligated to leave certain flows in the White River so that the water may be used in Utah is an issue that apparently has scarcely been considered to date. As competition for water use from the White River increases, it is probable that some division of the water between the two states will be made, whether by compact or judicial determination. As the White River flows partly in Utah and is a part of the Colorado system, and as Utah is entitled to the use of a fixed amount of water from the system under the Upper Colorado River Basin Compact, it is doubtful that Colorado could successfully maintain that it may consumptively use all of the water of the White River, if that were possible, and thus prevent use of at least part of it in Utah. At present, however, each state's specific entitlements in the river are uncertain and will have to wait further efforts to determine them.

Also, see Letter Response 18a.27.

22j.5 See the revised Summary, under "Unresolved Issues" in this Final EIS.

In addition, the 17,470 acre-feet is for the two units proposed and represents the long-term needs of the project. The USFWS has agreed that release of water from Flaming Gorge Reservoir would mitigate impacts to endangered fish species in the Green River.

Comment Letter 22k

COLORADO
HISTORICAL
SOCIETY

The Colorado Heritage Center 1300 Broadway Denver, Colorado 80203

February 10, 1981

Mr. Stephen O. Ellis
Principal Planner
A-95 Clearinghouse
420 State Centennial Building
1313 Sherman Street
Denver, Colorado 80203

Dear Mr. Ellis:

This office has reviewed the Environmental Impact Statement for the Moon Lake Power Plant Project Units 1 and 2, #80-107.

22k.1 A cultural resource survey has been completed for the power plant sites. If the Colorado site is chosen, the Bureau of Land Management (BLM) must consult with this office to determine whether any sites are eligible to the National Register of Historic Places and the effect the project will have upon those eligible resources. This consultation should take place at the earliest stages of planning and must take place before there are any ground disturbing activities.

We anticipate consultation with the BLM on determinations of eligibility and effect. If this office can be of further assistance, please contact the Compliance Division at 839-3392.

Sincerely,

for

Arthur C. Townsend
State Historic Preservation Officer

ACT/WJG:ss

Response Letter 22k

22k.1 The National Historic Preservation Act and 36 CFR 800 will be complied with. The Colorado Historical Society will be contacted at the appropriate time.

Comment Letter 23

Mr. Greg Thayn
Bureau of Land Management
University Club Building
136 East South Temple
Salt Lake City, UT 84111

Re: MOON LAKE POWER PLANT PROJECT--DEIS

Dear Mr. Thayn,

23.1 I have reviewed the draft environmental impact statement that your team has prepared on the Moon Lake Power Plant and have the following comments. I am concerned with the underlying need for the plant and feel that this area of the DEIS is seriously underdeveloped. The Deseret PRS that is referred to in the DEIS seems to contain projections that are unreasonably high. The 10.3 % annual growth figures in Table 1-3 seems particularly high. I would refer you to testimony recently filed with the Utah Public Service Commission by Neil H. Talbot in Utah Power and Light Company Case No. 80-035-17 which indicates that UP&L load growth over the period from 1979-1985 should be approximately 3.6% per year on peak. While Mr. Talbot assumes the development of the Moon Lake Plant in his projections for UP&L, it seems unlikely that the DG&T area would be growing at three times the UP&L rate for the same period. Perhaps an attempt to use Mr. Talbot's methodology would reduce the anticipated load growth of the applicant.

23.2 The other area of particular concern to me is the superficial analysis of conservation and solar and other renewable energy resources. I think that the type of analysis utilized in the recent Allen-Warner Valley Energy System EIS is appropriate. It is essential that the costs and benefits of alternative sources of energy be fully studied for the entire potential service area of the applicant. There is no indication in the DEIS that this has been done. Both the Utah Public Service Commission and the Utah Energy Office are engaged in considering the potential contribution to the energy future of the state of small-scale hydro units and wind machines. These options should be considered. The time table in the DEIS, assuming that none of these options would be sufficiently developed by 1985 may need to be changed substantially if lowered load projections and/or conservation efforts which may be cheaper than new construction push back the date the plant must some on line. Likewise, it appears somewhat strange to me that only selected utilites were contacted regarding power purchases. For example, UP&L recenly agreed to purchase a substantial amount of power from Arizona Public Service, yet they were not contacted by the applicant. Likewise various utilities in Texas appear to have surplus power available in the short run. This area needs to be more fully investigated as well.

Thank you for your consideration.

Bruce Plenk
125 L Street
Salt Lake City, UT 84103

Bruce Plenk

Response Letter 23

23.1 Deseret has used REA's recommended methodology in developing the load forecasts contained in the PRS. Deseret has now completed its 1980 PRS which results in modified numbers in table 1-3. Annual demand growth rates are currently shown as 11.7 percent from 1969 to 1974 and 8.2 percent from 1974 to 1979, and projected to be 12.9 percent for 1979-1984, 14.7 percent from 1984-1989, and 8.0 percent from 1989 to 1994. There are two things that were considered in analyzing this information: (1) The Deseret load forecasts are heavily influenced by expected industrial loads. Deseret's member cooperatives, serving predominantly rural areas, may experience more energy-related (coal, uranium, oil shale) load growth than will UP&L. (2) Deseret's total loads are much smaller than those of UP&L. Deseret's total demand in 1979 was 178 MW. If one of its members must serve a new 25-MW load, Deseret's demand will increase 14.0 percent. UP&L's 1979 demand, however, was 2,723 MW. If it picks up a new 25-MW load, its demand will be increased by only 0.91 percent.

23.2 Prior to embarking on an extensive analysis of energy conservation and other renewable energy resources similar to the analysis performed for the Allen-Warner Valley EIS (AWV), it is necessary to consider a few factors:

1. Three of the participants in AWV are major electric utilities with substantial amounts of base load generation. Deseret is a small utility with only 100 MW of base load generating capacity.

2. The State of California is reluctant to approve either coal-fired or additional nuclear generating capacity. Expensive oil-fired units make up the bulk of existing capacity. The current trend in California is to import electricity from generating stations sited in other states. The States of Colorado and Utah are currently exporting large volumes of coal to other states and are not opposed to the development of coal-fired generation if accomplished in an environmentally acceptable manner.

3. Both the AWV EIS and the Moon Lake Draft EIS acknowledge the reluctance of consumers to adopt energy conservation measures especially measures which require large initial investments coupled with a slow rate of return (solar heating and cooling). The AWV EIS indicates that implementation of such measures would be gradual and over an extended period. A similar situation would be expected in the Deseret service area.

4. The Utah PSC and Energy Office may be evaluating the future potential of low-head hydro and wind energy, but UP&L, the states largest utility, is continuing to build, design, and plan large coal-fired base load generation. REA feels that Deseret will also require sufficient base-load capacity, which must be reliable, dependable, and cost effective. Where alternative energy forms can be fitted into energy mix, they will be evaluated by Deseret and utilized when viable.

5. Whereas the consideration of alternative energy sources such as wind, solar, and low-head hydro in California may be feasible when costs of these alternatives are compared to expensive oil-fired generation, these forms of generation (especialy solar and wind)

Response Letter 23

23.2 (cont.) are not practical on a large scale at the present time within Deseret's service area when compared to coal-fired generation. Deseret will encourage low-head hydro development as a supplemental energy source and will seek cogeneration arrangements whenever practical and economical. However, REA does not consider renewable energy sources such as wind and solar to be sufficiently reliable and cost effective to be implemented for their base load needs.

This position is further verified by information contained in articles on wind turbines in Wyoming and solar energy in Sweden which appeared in the News Beat Section of Electrical World, March 1981, on pages 14 and 16. Also refer to Letter Response 35.4.

With regard to the availability of power purchases, Deseret contacted utilities within the Intermountain and Western Area. These utilities are located within close proximity to the service area served by Deseret. Short-term power from more distant utilities would not be cost effective (wheeling charges and line losses) and would not solve Deseret's overall power needs. Also refer to Letter Responses 36.59 and 60.

Comment Letter 24

Department Of Energy
Western Area Power Administration
P.O. Box 11606
Salt Lake City, Utah 84147

MAR 4 1981

In Reply
Refer to: L2000
652.

Mr. Greg Thayn, Team Leader
Bureau of Land Management
University Club Building
136 East South Temple
Salt Lake City, Utah 84111

Dear Mr. Thayn:

We have the following comments concerning your Draft Environmental Impact Statement - Moon Lake Power Plant Project Units 1 and 2.

24.1 References made on pages 26, 28, and 104 about the Water and Power Resources Service in connection with transmission lines and service areas should be amended to refer to the Western Area Power Administration (Western). Western owns the transmission lines, and is responsible for the transmission and sale of electric power generated at the Federally owned hydro-electric powerplants. Water and Power Resources Service owns and operates the plants.

24.2 The footnote below the table on page 101 concerning the construction costs of transmission lines indicates that Western's cost estimates are 17% higher than those contained in the table. We would need a further breakdown of your cost analyses in order to confirm this statement. The cost estimates we transmitted to your Richfield District Office by letter dated July 28, 1980, contain cost estimates which are lower than those appearing in your cost table.

If we can be of further assistance, please contact us.

Sincerely,

A. M. Gabiola
Area Manager

Response Letter 24

24.1 The Final EIS has been changed to reflect the Western Area Power Administration as the agency responsible for the transmission lines. See the reprinted page 104 in the "Minor Text Revision" section of Chapter 2 in this Final EIS.

24.2 The cost estimates you provided indicated that those estimates should be increased up to 50 percent for mountain construction and by 25 percent for overhead and contingencies. When those factors were included (using worst-case analysis corresponding to the maximum increases, where appropriate) the estimated cost based on the data you provided ranged from 11 to 39 percent higher than the estimates provided by Burns and McDonnell and averaged 17 percent higher than those estimates.

Comment Letter 25

TOWN OF
RANGELY
P O BOX 580
RANGELY, COLORADO 81648
Phone 303/675-8611

February 20, 1981

Mr. Gregory F. Thayn
Bureau of Land Management
University Club Building
136 East South Temple
Salt Lake City, Utah 84111

Dear Mr. Thayn:

Please find enclosed a typed copy of the comments made by Mayor Peggy Rector at the public hearing on the Draft EIS for the Moon Lake Power Project, February 19, 1981, in Rangely, Colorado.

The Town of Rangely wishes to submit an addendum to the comments, which is inserted before the "Cumulative Impact" section, commencing on page 5.

It is our understanding that our comments will be inserted in the Final EIS, together with appropriate responses. We wish to reiterate that the points raised in our comments are of major concern that should be addressed in the Final EIS.

Very truly yours,

Peggy J Rector

Peggy J. Rector
Mayor

Encl: Copy of Comments

PR/vm

TOWN OF RANGELY, COLORADO

COMMENTS ON SOCIAL-ECONOMIC IMPACTS ON THE DRAFT EIS FOR
THE MOON LAKE POWER PLANT PROJECT UNITS 1 & 2 SUBMITTED
AT THE PUBLIC HEARING IN RANGELY, COLORADO FEB. 19, 1981.

Introduction

The Town wishes to thank the BLM and the REA for this opportunity to express its views on the social-economic impact analysis contained in the draft Environmental Impact Statement pursuant to the Environmental Policy Act. In general, we believe that the Draft EIS serves to identify many particular areas of concern to the Town as we begin to experience on an ever increasing scale the overall effects of energy development on the Town of Rangely. If it were not for the National Environmental Policy Act., its review processes, and the men and women who staff and administer the REA and the BLM, our comments would not be possible and we may ultimately be faced with community and local governmental problems far beyond our capabilities to address in the absence of watchful and orderly review mechanisms that NEPA provides.

The Town of Rangely also wishes to compliment Deseret G & T for the forthright and honest manner in which they have approached the Town and other affected local governmental entities in analysing and attempting to come to grips with the social-economic impacts that will beset the Town with the Deserado Mine and the Moon Lake Power Plant.

We wish to state at the outset that our comments are limited to social-economic impacts of the project proposal, regardless of where the plant is ultimately located. We take this position for the following reasons: No matter where the plant is located, the Draft EIS points out very plainly that Rangely will be markable affected. For instance, the average annual population growth rate for the Town will be approximately 20% if the plant were located in Rio Blanco County and 15% if it is located in Utah. The 15% growth rate, should it all occur within the Rangely Town boundaries, is about double the 8% annual growth rate considered to be a tolerable and manageable rate of growth by growth management experts. The 20% rate of growth is about 2 and 1/2 times the 8% manageable growth rate.

The Town therefore, believes that the Draft EIS should be commented upon, based on whether it adequately identifies and addresses social-economic impact on the Town of Rangely. We believe this to be of paramount importance to the Town at this point so that the Final EIS takes impact and its mitigation totally into account. Furthermore, we believe that since the Deserado Mine and the Moon Lake Power Plant represents only some 17% of total population impact on the Northwest Colorado and Eastern Utah Region, it is important that the Town go on record at this stage about our total concerns regarding social-economic impact and its mitigation from energy-related developments.

COMMENTS ON DRAFT EIS

Perhaps, the most effective way to express our views is not to become overly involved in submitting questions pertaining to statistical data or detail. Rather, we will talk in broader terms, for that is precisely the manner in which the Town wants to address the impacts which it faces in the future from Deseret and other energy projects.

Population

Population projections are a means to the end. That is, they represent the basis upon which virtually all else follows in impact identification. Population projections are derived from reasonably accurate estimates of construction, operational, and service or secondary employees. From this information, it is possible to project the number of families, single workers, income levels, etc. Ultimately, total population figures are developed. The estimated population is then used to project impact on community services, cost/revenue balances, number of doctors and dentists required, school rooms needed, etc. etc.

25.1 The Town's population is now approximately 2000 people. According to the Draft EIS the population will increase by a minimum of 1578 people by 1984 on the low end of the scale with both Units 1 & 2 located at Bonanza. If both Units 1 & 2 are located in Rio Blanco County, the population of Rangely will increase by 2257 people in 1985. These figures are peak figures and presume that both Units will be built. If only Unit 1 were built, the population projection would, of course, be lower as discussed in the Draft EIS. The Colorado West Area Council of Governments has projected base and non-base population to be 3808 people at peak in 1985 and a 3240 permanent population.

For the moment, we will not argue numbers and accept the lower figures in the Draft EIS (1578 and 2257). The population increase for Rangely, in any event, resulting from the Moon Lake Project would be significant, possibly doubling the existing population in less than five years. It is for this reason that we raise the following points which we believe should be addressed in the Final EIS and any subsequent impact mitigation agreement involving the Town and Deseret:

25.2 1. Population Disbursement. Nowhere in the Draft EIS is there included a breakdown of where the new population will reside. We believe that this analysis should include an examination of existing subdivisions in and out of Town, the constraints on locating personnel in Town or in the County, in-fill potential in Town, existing zoning and land use plans, utility constraints, etc. The reason for the inclusion of a population dispersement analysis is to allow the Town sufficient lead time (tax lead time, administrative lead time, and planning lead time) to prepare for in-Town impact. How else can the Town plan to serve its new customers with gas or water unless it has some idea where a population double its present size is going to reside? How can Town governmental staffing patterns be projected?

2. Future Growth Policies. If disbursement patterns are known, it makes it possible for both the Town and Rio Blanco County to plan future residential, commercial, and recreational land use patterns.

3. Severance Tax. Section 39-29-110 (1) (c), C.R.S. 1973, as amended, stipulates that 15% of the severance tax revenue derived from coal mined in the county is to be remitted to the Town or County on the basis of the number employees of the mine residing in each entity. Knowing more about population disbursement in

advance would assist the Town's long-range and short-range financial planning, an extremely important and critical function at this particular point for the Town.

Budget Projections--Cost/Revenue Analysis

25.3 The three elements of local government budgeting are: (1) Operations; (2) Capital Expenditures; and (3) Enterprise Funds. Of course, each of these have an expenditure and revenue side.

The Town believes that annualized projections for a ten to fifteen year period for these three budgeting functions should be included in the Final EIS. This should be accomplished on a line item or program basis and include the mandated and elective functions.

The importance of this analysis is illustrated as follows: Day Care, if budgeted, is an elective function of the Town, i.e., it is not mandated by State Law. If, however, Day Care services are anticipated to increase due to a population influx of families with working mothers, the Town would probably be faced with a new expenditure demand. If the Police Department (a mandated function) is to increase in size, then the Town needs to know the extent and timing of the expenditure increase and plan for needed revenue to meet the expenditures.

A more subtle phenomenon in Municipal services pertains to the upgrading of the quality of the existing services. Hence, growth frequently means more than mere numerical or quantitative increases. For instance, how long will it be before Rangely has its own police dispatching service? To man and fund such a service goes beyond the FBI standard number of 1.5 officers per one thousand population in computing the numerical increase. This figure was used in the Draft EIS as the sole standard to be used to determine the future size of the Rangely Police Dept. What is a "Planning Department?" Certianly it is much more than the cost of one planner and a secretary, since "quality development" is a goal the Town Council wishes to pursue. How long will it be before a full-time professional fire chief is hired to upgrade the fire protection services and, in turn, give Rangely a better fire insurance rating?

Of course, the monetary reason for projecting budgets on a year-by-year basis, which takes into account Deseret's impact, is to conduct a cost/revenue analysis for the operating, capital, and enterprise budgets, the purpose of which is to assess reasonable costs attributed to Deseret's projected fiscal impact. The resulting balance sheet of negative or positive cash flows is the bottom line for the Town, for with very few exceptions, the normal governmental expectations of everyday life are, like it or not, filled by units of local government. If the Town of Rangely cannot adequately respond to the demands of its residents, many of whom will be the employees of the Deserado Mine or the Moon Lake Power Plant, then all residents stand to suffer higher local taxes or degradation of the quality of services and their environment. This equally affects Deseret employees. The Town Council and the Administration must answer to all residents when this situation occurs.

Rangely is known throughout the region as being "ready for development". This is an underlying assumption throughout the Draft EIS. Rangely's preparation is due in large measure to its own willingness to incur bonded indebtedness for water and gas system improvements and to the infusion of funds from the Oil Shale Trust Fund. Hopefully, OSTF financing can continue in the future. But Rangely cannot expect to continue to rely on this source of funding perpetually, meaning that it will be available perhaps for only three to five years more. After that time, the Town could be left to its own devices. If that is the case, capital financing will take

a great amount of creativity, considering the fact that the Town will probably continue to have a residential property tax base, as distinct from a higher revenue industrial tax base. Those creative efforts have to start now, not when the well runs dry, so to speak. Cooperative efforts between the Town and Deseret G & T are needed and needed now.

25.4 The Draft EIS states that:

> Rangely operates water and sewage treatment facilities to handle a population equivalent of 5000 and 6000, respectively. These are designed for expansion to accommodate a population of 10,000. This capacity would be adequate to handle population associated with the project.

The capacity of the water treatment plant might be adequate, if expanded, but unless the Town's current request for 1983 OSTF funding of $3.1 million for water plant expansion is approved by the legislature, it is doubtful that a population of even 5000 can be served. This number could very nearly be reached by the population impact of the Moon Lake Project alone. The $3.1 million does not include substantial outlays for water system distribution improvements. Some $500,000 is being requested for the 1981 OSTF allocations for this purpose.

It should be noted at this point that the State Legislature, we understand, is closely scrutinizing water and water-related projects requested to be funded through the OSTF. It is, therefore, by no means certain that the system will be automatically capable of serving the increased population as the Draft EIS appears to suggest, if OSTF monies are solely relied upon as the source of funding.

25.5 The Draft EIS does not take into account the long range debt the Town has incurred. Among other long-term debt owed, some 1.2 million dollars is owed to the Economic Development Administration and the Colorado Water Conservation Board. This latter debt the Town has not been able to start repaying since incurring it in 1978 for systems expansion and improvements. Another $150,000 loan application for water plant improvements was approved in January 1981. The Town has attempted to meet these liabilities and high operational costs with water rates and plant investment fees. This approach simply has not been adequate to date. There is nothing on the horizon which indicates that operational improvements, expansions, existing debt, and future long-term debt that might result from the increased population of the Moon Lake Project can be totally handled by plant investment fees and water rates. This is a logical area of impact mitigation discussion between the Town and Deseret.

Housing

Housing, like medical care, is a basic every day need that is usually satisfied by the private sector in terms of land, construction, and sales to potential owners. Local government does have some effect on housing, cost, and its quality through planning, zoning, building inspections, and general police powers.

Deseret is demonstrating that it is consciencious about its role and responsibilities in furnishing adequate and affordable housing in sufficient quantities, type, and quality to house its workers. We are told that preliminary commitments have been made by Deseret to encourage private developers to supply over 100 single family, apartments, mobile homes, and recreational vehicular and trailer spaces required to meet the housing demands of the Moon Lake Project. Such encouragement will be accomplished, we understand, by Deseret guaranteeing sales and rentals. Deseret may also construct some of its own housing. These efforts, however, are directed

25.6 at only resolving part of the housing problems associated with Unit 1 construction at Bonanza which peaks at 218 units in 1985. Unit 2 construction would peak housing needs in Rangely at 447 in 1985. The Town would be interested in learning about Deseret's plans for meeting the larger housing impact since it is very likely that both units will be built within a very short time frame.

The Town is equally concerned about housing, perhaps the single most important aspect of maintaining quality of life on the Western Slope and, yet, perhaps the most difficult goal to achieve, housing's very importance to the entire fabric of the Rangely community, where very little moderate and medium housing exists, increasingly makes housing local government's business, despite traditional reliance on the private sector to meet this need. As an example of its concern, the Town commissioned at considerable expense two studies which were recently received. These two extremely important studies dealt with the Rangely Housing market demand for affordable housing and ways to meet that demand. These studies will be made available on request to the joint lead agencies for inclusion as reference material germane to the Draft EIS for the Moon Lake Project.[1]

25.7 We believe that prior to adoption of the Final EIS, the Town should be more specifically informed of Deseret's housing mitigation plan, including the time table. These efforts should be judged against the findings of the two reports cited above, as well as against the planning development and review processes which the Town will have to have in place to assure quality of development. The impact that the Town will experience in this vital sector of the community requires the Town to take a more active role in this matter and work very closely with Deseret.

25.8 We are not substantially in agreement with the assertion in the Draft EIS that mobile homes may be Rangely's only alternative for moderate income families in view of high construction costs and mortgage rates. A cooperative effort of industry and the Town should include a review of develoopment review standards, peak demand versus permanent housing needs, land development costs, construction and interim financing, and ownership and permanent financing. All these efforts will take the creativity of all levels of general government, industry, perspective developers, and the community at large.

Rangely Water Supply--Water Rights (Addendum added 2-20-81)

25.9 The Town of Rangely believes the Draft EIS does not adequately address potential adverse effects on Rangely's continued water supply. The cumulative impacts on Rangely's stream flow rights should be addressed in the Final EIS, taking into account, for example, oil shale development, the Moon Lake Power Plant, etc. Many long-range policy issues for the Town hinge on such an analysis: Town growth potential; water quality as well as quantity; need and urgency for development of water storage. The extent of the demands that can be placed on the Town's social and economic environment is in large measure dependent upon the availability of sufficient potable water to meet the demands. The following table on useage and White River stream flows illustrates the problem the Town may be facing in the future:

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[1] "Rangely Housing Marketing Study", Community Services Collaborative, Jan. 1981. "Feasibility of Supplying Affordable Housing in Energy Impacted Areas. Rangely Colorado: A Case Study", Community Development Associates, Dec. 1980.

RANGELY Daily POTABLE WATER USEAGE (Based upon 1978, 1979, 1980 Consumption figures)

	GPDPC	MGD	CFS	AF
Peak day	900	1.90	2.95	5.83
Max Month (July)	500	1.06	1.64	3.24
Summer Months Av. (June, July, Aug., Sept.)	408	0.86	1.34	2.65
Av. Annual	315	0.67	1.03	2.04
Min. Month (Nov)	178	0.36	0.55	1.10

RANGELY RAW WATER USERS CONSUMPTION

MGD	CFS	AF
1.0	1.55	3.07

TOTAL RANGELY CONSUMPTION = 4.50 cfs daily

WHITE RIVER LOW FLOW MONTH & YEAR-July, 1977

	Meeker, Co.	Rangely, Co.	Watson, Ut.
Mean	116 cfs	123 cfs	139 cfs
Max.	202 cfs	192 cfs	474 cfs
Min.	78 cfs	62 cfs	13 cfs

15 cfs low flow at Old Water Treatment Plant about mid July, 1977 calculated by Kent Holt of Water Division No. 6, Steamboat Springs Office.

Calendar Year, 1976 Total: Mean 549 cfs, Max 2030 cfs, Min 230 cfs.

Water Year (1 Oct-76/9-30-77) Total: Mean 312 cfs, Max. 587 cfs Min. 62 cfs.

WATERSHED SNOWPACK WATER CONTENT, Feb. 1, 1981.

32% of 2-1-'80

29% of the average for 1963-1977

Cumulative Impact

The Draft EIS makes very brief mention of cumulative impacts that may effect the Town of Rangely. One can only wonder. As a Draft is perused, one knows there is only so much service the Town can provide, despite its reputation "being ready for development". So one cannot fail to conclude that "Deseret will be consuming a great deal of the Town's current excess capacity." This amounts to a sort of instant social and economic impact analysis. Not overly sophisticated, but nevertheless meaningful enough. Consumption of "excess capacity" means that there will be a consumption of excess land[2], water treatment capacity, sewer treatment capacity, fire protection, classrooom space,[2] health care facilities, medical personnel, etc. What happens, one muses, when other significant energy development begins to be felt in the region and in Rangely and their impacts analyzed--Ca Tract, Multi-Mineral, Ua, Ub, Phillips, Chevron expansion, increased gas exploration? What then?

25.10 We do not believe the Draft EIS satisfactorily addresses the problem of cumulative impact. COG, for example, believes that the Ca Tract and Moon Lake Projects alone could bring total population to the Town of somewhere between 8240 and 8740 permanent population by 1985 a number far in excess of what the Town can hope to serve at this point. While the numbers might be questioned, we believe that the Final EIS should take such impact on the Town of Rangely thoroughly into account as well as provide growth management strategies for meeting total impact. Please recall that the Moon Lake Project represents only 17% of the total work force of all energy related projects in the area. While not all developments will impact Rangely as directly as the Moon Lake Project, their total impacts on the Town will nevertheless be significant. The Town of Rangely cannot merely adopt a posture that is largely reactive and passive in nature, that is, one that essentially waits to respond to the next Draft EIS for another energy company which happens to need a permit to utilize Federal Lands for its commercial activities. We believe that the lack of reliable, cumulative impact information is neither fair to the Town, industry, nor the governmental agencies involved. It complicates and confuses issues that need not be so.

25.11 The immediate question with respect to the Draft EIS for Moon Lake is the need to include cumulative impact information in the Final EIS. Ultimately, the Town and Deseret should plan to enter into a contractual relationship for impact mitigation. The presumption contained in the Draft EIS that the "Town has the capacity to meet the impact" is a presumption without validity unless it can be judged against a cumulative impact analysis. The absence of such data can serve to slow up an otherwise expeditious agreement between the Town and Deseret.

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[2] 21 acres for housing, 7 acres for new streets and associated utilities, 2 acres for commercial growth, and one acre for recreation. No new acreage for schools since Rangely schools are operating at 46% capacity. (page 268)

SUMMARY AND CONCLUSION

Our conclusions are as follows:

25.12 1. The social-economic analysis in the Draft EIS is not satisfactory. We find it lacking in current and future state economic and social analyses. As a matter of fact, very little is said about social change that Deseret will bring. Virtually nothing is said about solutions, which is perhaps its worst short-coming. 25.13 It is apparent that the data were prepared in isolation of the units of local government affected. This latter approach seldom proves to be beneficial to governmental entities experiencing the impact; the study work program is developed without substantive input from the impactee.

25.14 2. We believe certain baseline and statistical data is lacking in the Draft EIS. We made particular comments regarding desired information in the areas of population, housing, cost/revenue data, and cumulative impacts on the Town. We believe this should be completed and made part of the Final EIS. Otherwise the document would have serious shortcomings.

3. In points 1 and 2 above, we have focused on the short-comings of the Draft EIS. More substantively, however, it is our belief that both Deseret and the Town and, for that matter, other governmental entities would benefit more readily if we would all look at an EIS in its true perspective. The dynamics of the social, economic, and political worlds are such that the Town and all other concerned governmental entities would benefit most if we entered into an ongoing impact review committee so that such issues as cumulative impact, immediate impact, housing, and financial and administrative strategies can be viewed and dealt with on a contractual basis in the true dynamics of the situation. To their credit, Deseret and the Town have tried on an informal basis to form an impact committee. We believe it should be formalized. Perhaps, this last recommendation represents the true value of the NEPA process, rather than attempting to draft "the" definitive EIS, which is, at best, only a snap shot of social/economic issues at a particular point in history. In many cases it gathers dust on a shelf much like the proverbial snap shot. A formalized impact committee, meeting periodically, can ultimately serve as a forum for other industrial representatives so none is viewed in isolution of the other. Better base-line data and projected social/economic impact data in the Final EIS will assist the committee in the ongoing Moon Lake review.

We certainly hope that you will take our comments into consideration. Please feel free to contact the Town for additional information you may desire.

Thank You.

25.1 See Oral Testimony Response 28.

25.2 See Oral Testimony Response 29.

25.3 See Oral Testimony Response 30.

25.4 Thank you for your comment. This information will be used in the decision-making process.

25.5 See Oral Testimony Response 32.

25.6 Deseret has indicated willingness to mitigate housing impacts through such measures as guaranteeing sale of new houses, construction of single family dwellings, apartment and mobile home rental guarantees, and construction/operation of a RV/trailer park and single room bachelor quarters. These measures are to be negotiated by the applicant and the affected communities and are not yet "committed and enforceable". Therefore, these measures are not analyzed in this Final EIS. (See Appendix 11 in this Final EIS.)

25.7 See Letter Response 25.6.

25.8 See Oral Testimony Response 34.

25.9 It is apparent flow studies and other studies (Western Engineers, 1979) and (Hansen, 1980) that storage would be needed to ensure an adequate water supply for the power plant to use White River water in low-flow years. The Rangely power plant site would be developed only if a firm water supply can be assured.

A letter from the Town of Rangely (June 1980), indicated it owns a 30.95-cfs water right on the White River and that they offered to sell 16 cfs of that right to Deseret. Rangely uses about 4.5 cfs and will need additional water as the town grows. If reservoir storage were provided for use by Deseret, it is assumed that Rangely would use that same storage and be able to maintain an adequate water supply to provide for its future needs.

25.10 See Oral Testimony Response 35.

25.11 The analysis presented in Chapter 4 contains projections of cumulative impacts (see Oral Testimony Response 35). Deseret has demonstrated intent to mitigate project-related socioeconomic impacts in Rangely and Rio Blanco County and is in the process of negotiating contracts as you propose. Appendix 11 of this Final EIS presents the latest information available on this matter.

25.12 The BLM considers the socioeconomic analysis contained in the EIS sufficient to provide the Federal decision-makers and others with a perspective of the present situation and probable socioeconomic impacts of the proposed project. That was the purpose and intent of the analysis. (See Letter Response 36.19 for a further discussion of the adequacy issue.)

Solutions take the form of mitigation. The latest information regarding socioeconomic mitigation is presented in Appendix 11 of this Final EIS.

25.13 Throughout the preparation of the Draft and Final EIS, BLM has sought and encouraged input from the affected local governments. Public and interagency meetings were held and numerous telephone calls and letters were made to solicit information. All were in the spirit of obtaining the best available information and providing local governments, agencies, and private individuals the opportunity to express their concerns and offer information and suggestions. The EIS is the result of that effort and the information we were able to obtain. See also Oral Testimony Response 38.

25.14 The comments and baseline statistical data provided by the affected local governments were utilized in the preparation of the EIS. Information on the present and projected future situation regarding each of the topics you mention is included in both the Oraft and Final EIS.

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February 27, 1981

Greg Thayn, Team Leader
Bureau of Land Management
University Club Building
136 East South Temple
Salt Lake City, Utah 84111

RE: Draft Environmental Impact Statement
Moon Lake Power Plant Project, Units 1 and 2
Your Reference: 1792 ML
(U-910)

Dear Mr. Thayn:

We wish to comment on behalf of the Colorado River Water Conservation District upon the above referenced Draft Environmental Impact Statement. As you may or may not be aware, the Colorado River Water Conservation District is a quasi-municipal entity created by the Colorado Legislature pursuant to Colorado Revised Statute (1973) 37-46-101 et seq. Comprised of all of twelve and parts of three counties, the "River District" is the primary water policy body in western Colorado.

INTRODUCTION

As one of the State of Colorado's primary water development organizations, the River District has in the past lamented the delays occasioned by environmental laws and regulations in a general sense. However, the "Moon Lake Power Plant Project (MLPPP), as proposed in the Draft EIS, is perhaps one of the best reasons for such environmental review we have yet encountered.

Locating the power plant at the applicant's prefered location would necessitate among other things the construction

of thirty-five miles of railroad and the construction of nineteen miles of pipeline from the Green River. All of this will occasion substantial adverse impacts to the residents of Rio Blanco County, Colorado, and could be avoided if the Rangely alternative were selected.

GENERAL COMMENTS

26.1 The familiarity of the River District with the proposed action of Moon Lake (Deseret) goes back several years. The River District has for years negotiated with Moon Lake and now Deseret in order to provide the applicant with the water supply for the power plants should they be located at the Rangely site. The River District believes the ultimate selection of the "applicant preferred location" at the Bonanza site located just over the state line from Rio Blanco County, was founded upon clearly invalid data. In fact, the River District believes that the site selection was based upon information not provided in the Draft EIS and upon considerations purely political in nature which in and of themselves ignore the environmental consequences of the applicant proposed action.

At page 35, the Draft EIS iterates the applicant's (and perhaps REA's) rational for selecting the Bonanza site:

> The Bonanza site in Utah was selected as the applicant proposed plant site because of recommendations by the Utah State Siting Committee and its proximity to the Green River which could be used as a water source. The Rangely site in Colorado was selected as an alternative site because of its proximity to the coal source at the Deserado Mine.

The River District will proceed to point out that the rationales given for site selection at the Bonanza site are either irrelevant or incorrect at best and ignore the one relevant and valid consideration which was the basis of selecting the Rangely site.

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26.2 The first rationale --- "the recommendation of the Utah State Siting Committee" clearly did not give adequate consideration to the Colorado site. The Utah Siting Committee inevitably would be prejudiced by the benefits to be derived to Utah taxpayers by situating the proposed power plant in Utah. As such, it is clearly not an appropriate criteria to use in selecting a Utah alternative over a far more practical location --- the Rangely site.

The second rationale listed for selection of the Bonanza site was the "proximity to the Green River". As we will proceed to illustrate, the White River alternative water supplies in Colorado represent at least an equally reliable supply to that to be derived from the Green River and a far more practical one.

WHITE RIVER WATER SUPPLY

26.3 Beginning in 1974, the River District expended thousands of dollars in engineering fees documenting beyond contravention that the water supply available in the White River was amply reliable for the applicant's proposed action. Various engineering reports were revised and updated all at the request of Moon Lake Electric Association and all pointed to one inescapable conclusion --- that the White River would provide a reliable water supply irrespective of the resolution of all supposedly "contested issues" relating thereto. In all of said studies, the amount of water allocated to senior upstream conditional 26.4 users was assumed to be greater than they could legally divert and consume from the White River. The amount of water bypassed to the State of Utah, even under drought conditions, was more than the State of Utah could have conceivably required of the White River with or without any allotment to the Ute Indian tribe. The continued refusal of the applicant to recognize the dependability of the White River water supplies proposed by the River District can only be concluded to support the theory that the applicants had long ago elected the Utah alternative for whatever reason and since have merely attempted to justify this conclusion by

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casting doubt on the viability of the White River water supply.[1] Irrespective of the applicant's political desires, Colorado residents should not be forced to bear severe environmental consequences for the benefit of Utah residents.

26.5 All responsible engineering studies conclude that the water supply available to the Rangely Reservoir, under the most adverse assumptions,[2] averages 90,000+ per annum. Of this amount, the first 20,000 was to be allocated to the applicant. To contend, as does the Draft EIS, that "controverted issues" undermine the reliability of this supply simply ignores fact or demonstrates an intent to site the plant in Utah irrespective of the costs or consequences.

26.6 Some concern is voiced in the Draft EIS to the timely availability of the White River water supplies in Colorado. However, even the Draft EIS contains data which amply indicates that the Colorado water supply alternatives are viable both in terms of hydrologic reliability and timely availability. For example, on page 13, the EIS concedes that at present levels of development, direct flow water is available for the project except approximately one

1) Citing the Utah State Siting Committee's recommendation as the principal reason for selecting the Bonanza site is certainly in accord with this position.

2) Each of the so-called "controverted issues" with respect to the White River supply were assumed in all hydrologic studies to be resolved in a fashion most adverse to the water supply available to the Rangely Project. One study done at the applicant's request even assumed pumping back from the Rangely Project to supply water rights 60+ miles upstream with water neither physically or legally available to said upstream rights.

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26.6 (cont.) year in every hundred years.[3] Since that "one year", (the hundred year drought) has occurred during the 1976-1977 season,[4] the statistical probability of a reoccurrence during the 1984 water year in which initial water supplies would be needed for the project would be very low indeed. Moreover, there are in existence water reservoirs on the White River which are not committed to any other beneficial consumptive use. Such reservoirs would provide ample water to mitigate even the possibility of the hundred year drought occurrence during the short period of time between the testing and plant startup and the online availability of Taylor Gulch Reservoir.[5] The resultant conclusion is that the White River can easily supply Moon Lake's project at the present and in the future. Assertions to the contrary, whether based on alleged "controverted issues" or plainly erroneous implications only serve to document the applicant's desire to prejudice the decision in favor of the Utah site.

26.7 In the event that future development on the White River might interfere with presently available supplies, the

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3) Assuming a two week on site stored supply which is a part of the project as planned for either site.

4) This became even evident in view of the present indications of 1981 water runoff.

5) The EIS attempts to cast doubt on the White River supply by implying that some "minimum flow" might be required to be delivered to Utah. Such an implication ignores the method by which the "law of the river" (the Upper Colorado River Compact of 1948) makes allocations between states. The Compact requires no "minimum" flows. It allows annual average consumptive use in acre feet from all sources available to a state with fixed gross delivery amounts in some cases. There is no water delivery requirement on Colorado to Utah from the White River.

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26.7 (cont.) Rangely Project (at one or both of the Taylor Gulch and Wolf Creek sites) is easily susceptible to timely permitting and construction. As the Draft EIS notes, the financing for the Taylor Gulch [first stage of the Rangely Project] has already been arranged and design is underway. Even with the necessary permitting delays (applicants are as likely to experience such delays) the Taylor Gulch portion of the Rangely Project will be on line by the time even applicant "hopes to" have its project in production (1985).[6] This leaves ample time to assess actual additional water development on the White River and to develop additional storage (probably at the Wolf Creek site) if needed.

26.8 Another problem discussed with respect to the Taylor Gulch Reservoir involves the time in which the reservoir itself would partially fill with silt thus reducing its capacity. While the siltation of a reservoir is a practical problem that must be anticipated, the method by which this problem is handled in the EIS is both misleading and at best, only a weak rationalization for the dismissal of the Taylor Gulch alternative. For example, on page 83, Hansen, 1980, contradicts and increases the rate of siltation forecast by Western Engineers, Inc. of Grand Junction, Western, 1979. For the purpose of computing the siltation it is submitted that Hansen used the undepleted flows of the White River. In the undepleted case, siltation would occur somewhat more rapidly than under depleted conditions. However, elsewhere

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6) The yield from the Taylor Gulch portion of the Rangely Project alone is approximately 35,000 a.f. in the worst year of record (Western Eng. 1979) and will satisfy applicant's total needs (Units 1 and 2) for at least 30 years from start up, even with substantial upstream development.

26.8 (cont.) in the EIS, one of the unresolved problems with White River water supplies is alleged to be the possibility of upstream development. If upstream development occurs, then the siltation problem would be much less significant. It is submitted that the analysis upon which the EIS is based and the decision concerning the applicant preferred alternative should at least be internally consistent. In other words, if the water availability is a reason for selecting the Bonanza site, then the White River should be analyzed either as water is available at present or the Taylor Gulch Reservoir capacity would have to be measured based on the depleted inflow of silt. Either analysis will show ample water supply on the White River.

Another example of such "data switching" by applicant is found in its complaints about the impact on water supply by future development on the White River and its own estimated plant life. The development of all senior upstream decrees on the White River (which still would not impair applicant's water supply) is extremely unlikely to occur in applicant's own estimate of plant life (1985 plus 40 year estimated plant life = 2025).[7]

GREEN RIVER WATER SUPPLY - A VIABLE ALTERNATIVE?

As noted above, the EIS indicates that one of the two major reasons for selection of the Bonanza site is its "proximity to the Green River". By implication, it would appear that the

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26.9 7) When one recalls that the other major reason for Utah site selection was the recommendation of the "Utah Site Selection Committee", it becomes increasingly clear that the Colorado alternative was rejected with less than a good faith analysis of all the benefits and environmental consequences of the two.

Green River represents a more viable water supply than the White River especially the Colorado alternatives. It will be apparent from the discussion to follow that this is simply not the case and consists of little more than a justification for the selection of the Utah site.

26.10 The EIS concedes that the Green River is critical habitat for not only the Colorado River squawfish but, among others, the humpback chub. However, the EIS attempts to ignore these problems by addressing a "Flaming Gorge Release" which allegedly would mitigate any potential adverse impact upon these species. Several adverse impacts of the Flaming Gorge Release are ignored even though elsewhere in the EIS it is demonstrated that such information was and is readily available to all concerned with the site location decision-making process. First, it should be noted that Flaming Gorge releases do not add any water to the river. Just as would the Taylor Gulch component of the Rangely Project, Flaming Gorge merely reregulates the flows of the Green River. Moon Lake's use of Flaming Gorge Reservoir would result in a net depletion to the Green River. The assertion that releases from Flaming Gorge would somehow change this basic fact are clearly erroneous and misleading.

26.11 Next, while the EIS recognizes the problems with operation of Colorado White River Reservoirs to be one partially of reduced temperature downstream flows affecting endangered species, this point is strangely ignored when increased cold water releases are contemplated out of Flaming Gorge Reservoir. The release of an additional (?) 17,400± acre feet from Flaming Gorge to the Green River would in all probability impact the habitat of endangered species by increasing flows of waters already too cold for endangered species reproduction.

26.12 In any case, it is certainly inconsistent and impermissible for an applicant and/or agency to predicate a decision to site a plant in Utah upon a hoped for contract for water releases out of Flaming Gorge Reservoir. If the decision to site the plan is predicated upon water supplies available in Flaming Gorge, then the Draft EIS must address detrimental impacts to Flaming Gorge and its recreation resources, detrimental impacts to endangered species habitat in the Green River

26.12 (cont.) below Flaming Gorge, and other related impacts addressed in this section.

26.13 Some additional problems with the Green River alternative should be obvious but are not addressed in any respect in the EIS. First, there is considerable doubt that the hoped for appropriation of 17,400± acre feet per annum is allowed Utah under the terms of the Upper Colorado River Compact. Utah, by virtue of the Central Utah Project and other water rights development, foresees using the entirety of its allotment under the Compact. A claim such as that here made might well exceed Utah's entitlement out of the Compact and certainly must be addressed in the Draft EIS.

26.14 Keeping in mind that the Flaming Gorge releases add no water to the stream in a net annual sense, they nonetheless might temporarily increase the flow of water in the stream above Deseret's point of diversion on the Green River. This clearly represents an alteration of an endangered species habitat which is not addressed in the Draft EIS. Such an alteration, if adverse, is prohibited by the Endangered Species Act of 1973. The Draft EIS is deficient in not addressing this impact.

26.15 The EIS concedes that at page 261 that the cumulative impact of the proposed action and that of others (of which the agencies preparing the Draft were aware) would adversely affect the Green River endangered species. Such an assertion makes it clear that the action proposed by Moon Lake in relying on the Green River alternative could violate the Endangered Species Act of 1973 and must be considered in the Draft EIS.

26.16 The proposed reliance on Green River water supplies is misplaced in many other material respects. Each of the alleged problems with White River water supplies are duplicated by the situation to be encountered by the applicant on the Green River while none of the duplicative problems are

26.16 (cont.) addressed in the EIS.[8] The obviously cursory treatment of the problems to be encountered on the Green River indicate that the Utah State Siting Committee's recommendation was probably the only criteria used in determining the probable site for the power plant Units 1 and 2. Under such circumstances the "applicant preferred alternative" is suspect indeed.[9]

CONCLUSION

The Utah alternative has been selected without consideration or adequate regard for the environmental consequences to be imposed upon the residents of eastern Utah and northeastern Colorado. By its own terms, the Draft EIS acknowledges that the impacts would amount to at least nineteen miles of pipeline, thirty-five miles of railroad, impacts on Green River endangered species and "controversial" social and economic impacts on Rio Blanco County taxpayers (not to mention the net energy savings available at the Rangely site. Draft EIS, page 135). Such impacts could be avoided

26.17 8) High capacity wells in a river alluvium which would impact the flow as much as 17,400+ acre feet per year would probably "affect wetlands" to the extent that a Section 404 Permit would be required.

26.18 9) At page 35 of the Draft EIS, it is indicated that MLEA had been looking at the Rangely site since 1958, obviously recognizing the benefits of siting its power plant near the coal. It did not begin identifying sites in Utah until August of 1977. This fact buttresses the contention that irrespective of adverse environmental consequences MLEA intends to locate the plant in Utah for whatever misguided reasons.

Comment Letter 26

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should the plants be located at the Rangely site.

The Colorado River Water Conservation District submits that the agency decision makers should fully and adequately address the concerns discussed hereinabove. If these concerns were fairly addressed, the obvious choice must be to favor the Rangely site as it maximizes the benefits and minimizes the environmental consequences of the proposed action.

Very truly yours,

DELANEY & BALCOMB, P.C.

By Scott Balcomb
Scott Balcomb

SB:pc
cc: Kenneth O. Kenney
Roland C. Fischer
Harris Sherman
Peggy Rector
William McDonald

Response Letter 26

26.1 On page 35 of the Draft EIS, it is explained that, "The Bonanza site in Utah was selected as the applicant-proposed plant site because of recommendations by the Interagency Task Force on Power Plant Siting and its proximity to the Green River which could be used as a water source. The Rangely site in Colorado was selected as an alternative site because of its proximity to the coal source at the Deserado Mine."

The Interagency Task Force dealt with only the Utah sites and evaluated them against criteria such as wildlife, archaeology, and air quality, which includes environmental concerns. The Rangely site in Colorado was analyzed by BLM and REA in the EIS as an alternative because they recognized the environmental benefits of a "mine mouth" operation. As directed by 1502.14c of the CEQ guidelines, the EIS states the "agency-preferred alternatives" at the time of printing. As directed by 1506.10(b) of the CEQ regulations, a decision as to the permitting of the project and the final site selection, if rights-of-way and loan guarantees are allowed, will not be made until 30 days following the Federal Register Notice on the filing of the Final EIS. After a decision is made, BLM and REA will follow 1505.2 of the CEQ guidelines and each will prepare a "Record of Decision", a public accounting for the factors on which the decision was based.

26.2 The Interagency Task Force on Power Plant Siting did not analyze the Colorado (Rangely) site (see Letter Response 26.1). BLM and REA consider the Rangely site as a viable alternative and have analyzed it in the Moon Lake Draft EIS. Federal government decisions on the permitting of this project have not been made and, if permitted, a final site selection will not be made for at least 30 days after the Final EIS is made available to the public. Following the decision, a record of decision explaining the government's rationale will be made public.

Deseret's (the applicant) preferred alternative is not binding on BLM and REA. Both BLM and REA have sent letters to Deseret advising the company that the government is not liable for company commitments or expenditures prior to an official decision and that the government is under no obligation to decide in favor of Deseret's preferred alternative.

It has been made clear to Deseret and to others that no Federal decision to approve, disapprove, or require modifiation of the proposed project will be made until after completion of the NEPA process.

26.3 Thank you for your comment. This information will be used in the decision-making process.

26.4 Please refer to the reprinted page 83 of "Minor Text Revisions" section of Chapter 2 of this Final EIS for an explanation on water flows. The comments are based on average flows and the assumption that, on the average, 200 cfs (under worst conditions) would be bypassed to the State of Utah. It should not be assumed that the bypass would average 200 cfs or guarantee that amount during drought years because no water would be available without holdover storage capacity. Also, see Letter Response 22j.3.

26.5 The Text has been revised. See Summary, "Unresolved Issues" section in this Final EIS.

26.6 The probability of insufficient direct flow in the White River was described as 1 year every 100 years. According to the law of probability, this indicates that each year there is a 1 in 100 probability of insufficient

26.6 (cont.) water. The occurrence of the event in any given year does not affect the probability of the occurrence in the subsequent year. The observation that there is insufficient direct flow in the White River for the project is supported by the conclusion to the Western Engineers (1979) study which states, "in most years, the White River has an adequate water supply, but during low flow periods, no water (flow) will be available in the river without holdover storage." See the reprinted page 83, "Minor Text Revision" section of Chapter 2 of this Final EIS.

No official offers of water from any upstream reservoirs have been brought to the attention of BLM or REA. Therefore, there is a factual basis for the assertion that direct flows of the White River are not sufficient for the Moon Lake project.

26.7 The text has been revised. See the Summary, "Unresolved Issues" section in this Final EIS.

26.8 There have been numerous siltation studies on the White River: Clyde, Lazenby, Hook, and Bingham Engineering) as referenced in Grenney and Kraszewski (1980); Western Engineers, Inc. (1971) (as referenced in the Draft EIS); and Vaughn Hansen Associates (1979). Because of the wide disparity of estimates from all of the studies, it was assumed that an average yield mentioned by all the above was reasonable. The Western Engineers (1979a) data on siltation is presented on page 83 of the Draft EIS. The total sediment transport over the 30-year repayment period may be 12,000 acre-feet at Rangely. Of this amount, a significant portion would be deposited as a delta upstream from the reservoir. Some additional sediment would be flushed through the reservoir through low level outlet gates. Because this reservoir would be operated in a manner aimed at eliminating and flushing as much silt as possible, the reservoir would probably never fill completely with silt and would, as indicated on page 86 of the Draft EIS, act as a storage pond for pumping by the Moon Lake project. We agree that as upstream developments occur added life would be given to the downstream structures. This is indicated on page 86 of the Draft EIS.

26.9 Deseret has expressed a preference for the Bonanza plant site but has not "rejected" the Rangely plant site. Deseret has filed applications with the BLM for both plant sites, and the Rangely plant site has been analyzed as an alternative plant site in the Draft EIS. (Also, see Letter Response 26.2.)

26.10 See Oral Testimony Response 3.

26.11 See Oral Testimony Response 3.

26.12 See Oral Testimony Response 3.

26.13 It is true that the 30-cfs Deseret water right makes up about 0.015 percent of Utah's share of the Colorado River compact water. The text has been revised to reflect this information. See the revised Chapter 4 "Water Resources" section of "Environmental Impacts of Power Plant and Raw Material Supply Systems" in this Final EIS.

At present Utah is only using 850,000 acre-feet annually out of at least 1.4 million acre-feet. The Utah State Engineer will decide what additional water rights are approved for use in the remaining allotment. The State of Utah recognizes the validity of the Deseret water right. If that right were developed, future water developments would be held within Utah's share of the compact water.

26.14 See Oral Testimony Response 3.

26.15 See Oral Testimony Responses 3 and 17, and Letter Response 28.9.

The biological opinion (Draft EIS, Appendix 23) identifies the USFWS "reasonable and prudent alternatives" which may be used to avoid a "jeopardy" situation to endangered fishes of the Green River.

26.16 Deseret's preferred alternative was not based on the Draft EIS. Deseret had developed their "preferred alternative" prior to initiation of the EIS process. BLM and REA are not obligated to decide in favor of Deseret's preferences and those preferences did not influence the analysis in the EIS. The problems of water supply from the Green River in Utah are not entirely duplicative of those that could be encountered on the White River in Colorado. For example, as discussed on page 166 of the Draft EIS, the low flows on the Green River average 3,000 cfs and the flow regime of the river is largely regulated by Flaming Gorge Reservoir, while the low flows on the White River usually range from 200 to 350 cfs with a lowest recorded flow of only 11 cfs in 1977. There is no foreseeable risk in relying directly on the comparatively large flows of the Green River, while there is some risk of relying directly on the flows of the White River which have a probability of being insufficient 1 year in every 100 years. The commenter believes that this is an acceptable risk while Deseret and REA presently believe that this is a risk they would prefer not to take. The Draft EIS reports this as a controversial issue on page 14, which in no way obligates Federal decision-makers to decide on either source but alerts them to the fact there would be controversy regardless of the water source selected.

Deseret holds a sufficient (30 cfs) water right on the Green River, and this water right is recognized as valid by the State of Utah. Deseret holds only a 6-cfs water right on the White River and other water rights consist of offers by the Town of Rangely, Water Users Association No. 1, and the Yellow-Jacket Water Conservancy District.

A long-term reliable water source could be developed immediately on the Green River if permits were issued. Development of a long-term reliable water source on the White River would involve the expected construction of one and possibly two reservoirs. Although construction of these reservoirs has not passed NEPA approval or received permitting requirements, it is still possible they could be developed within Deseret's time frame.

The U.S. Fish and Wildlife Service official biological opinion (Appendix 23 of the Draft EIS) is that release of water during critical low flows on the Green River would mitigate potential impacts to endangered fish (see Letter Response 2.1). No formal opinion has been given for the Rangely Reservoir project. However, the USFWS is involved in a study on the Green and White River systems to determine the distribution, essential habitat, limiting factors, and flow requirements of the endangered fish. Until the study is completed in January 1982, official opinion on water withdrawal without approved mitigating measures or alternatives will likely be a jeopardy opinion.

Response Letter 26

26.17 (cont.) Please refer to Letter 5 in this document. The letter is from the Department of the Army, Corps of Engineers and states that no 404 Permit is required for this project. Additionally, no wetlands have been identified in the project areas (see page 169 of the Draft EIS).

26.18 See Letter Response 26.2.

Comment Letter 27

United States Department of the Interior
OFFICE OF SURFACE MINING
Reclamation and Enforcement
WASHINGTON, D.C. 20240

MAR 4 1981

Memorandum

To: Acting Director, Bureau of Land Management

From: Acting Director, Office of Surface Mining

Subject: Comments on the Draft Environmental Impact Statement on Moon Lake Power Plant Project, Units 1 and 2

We have reviewed the Moon Lake Power Plant Project Draft Environmental Impact Statement (EIS) in accordance with 40 CFR 1503.2. In addition, since the Department also intends to use this EIS in its decision on the Deserado Mine, which is associated with the power plant, we have carefully reviewed the EIS analysis of the proposed mine plan to insure adequate assessment of all reasonable actions the Department could take on the proposed mine plan.

27.1 One of our procedural concerns is that the EIS should provide an adequate explanation of the responsibilities of OSM and the Secretary of the Interior in the review of proposals to mine Federal lands under the Surface Mining Control and Reclamation Act (SMCRA). OSM and the Mine Land Reclamation Division, State of Colorado, are currently preparing a Technical and Environmental Assessment on the Deserado Mine which will evaluate compliance of the applicant's proposal with SMCRA and the Colorado Permanent Regulatory Program. This document in addition to the Moon Lake EIS should be part of the Secretary's record of decision on this mine plan. This information should be presented in the final EIS and reflected in the Federal Register and newspaper(s) notices on the availability of the final EIS.

27.2 The other concerns which we have identified are discussed in this memorandum and in the detailed comments listed in the attachment to this memorandum. First, adequate baseline data and impact assessment of the Deserado Mine has not been included in the draft. For example, there is no discussion of the disposal of spoil on about 600 acres adjacent to the mine. In addition, the cumulative impacts from the mine and the power plant are not discussed for every alternative. We realize that BLM may not have had adequate data at the time of preparation of the draft EIS. However, the BLM staff

27.2 (cont.) should have the updated mining and reclamation plan as of this date and, with assistance from OSM, the final EIS should provide a more detailed analysis of the impacts of mining. We do believe since the OSM Technical and Environmental Assessment (TEA) is underway that the final EIS will adequately evaluate the impacts of the mine according to NEPA and the Council on Environmental Quality (CEQ) requirements, if material from the TEA is carefully incorporated into the final EIS.

27.3 OSM staff believes the method of presenting technical alternatives is confusing to the reader. We suggest that a numbering or lettering system or some combination be applied to clearly delineate the complex range of technical alternatives to the reader of the EIS. In addition, the evaluation of alternatives to construction of the power plant should be objective and expanded to include all reasonable alternatives. If the staff has concluded from research that an alternative(s) is not viable for this area, adequate documentation (e.g., references) should be presented to the reader.

Our detailed analysis of the draft is extensive. We feel that the OSM regional staff must work closely with the BLM Regional staff to adequately present impacts of the mine associated with the power plant in the final EIS. Please know that I am making staff (from Region V, OSM) available to you in order to prepare the final EIS to meet our needs for the mine plan decision.

Attachments

Andy Bailey

Detailed Comments on
Moon Lake Power Plan Project Draft Environmental Impact Statement

27.4 page 2 Plant site alternatives; what were the criteria used to select the 2 final sites from the initial 12 sites.

27.5 page 3 Water source alternatives; more details about each water source is needed i.e., planning stage, funds available, when operable, effect of any Federal budget cuts, etc.

27.6 page 4-8 Summary of major environmental consequences; under each of the subheadings (plant site alternative, coal sources alternative, etc.) another heading should be added for each of the alternatives (i.e., Bonanaza site, Rangely site, Deserado mine, open market purchase, etc.).

27.7 page 4 Plant site alternative; what effect will the removal of riparian vegetation have on wildlife and what species of wildlife?

27.8 Impacts of the power plant should be as quantitative as possible.

27.9 The discussion on coal severance and revenue taxes should be moved to the coal source alternative section and a discussion aided on the lag time between when an impact occurs and when funds are available to help alleviate public service demands.

27.10 The last paragraph we suggest deleting except for the 1st sentence as this discussion is not clear and objective.

27.11 page 5 Coal source alternative; it should be stated that subsidence is planned and will be 4 to 6 feet and noticeable in some areas within the lease and may also affect the Staley-Gordon Road.

27.12 Documentation should be provided to support the conclusion that water quality will not be affected.

27.13 Vegetation will be eliminated on over 1,200 acres for life of project and into reclamation. This loss may affect prairie dogs, sage grouse and golden eagle.

27.14 page 6 Coal transport alternative; quantify impacts of highway truck hauling on people and wildlife.

27.15 page 8 No action alternative; define "environmental growth trend". What are the benefits of this alternative?

27.16 page 15 Introduction; add a statement to the effect that a mining and reclamation plan for the Deserado mine is being reviewed by OSM Region V in Denver, Colorado. OSM will use BLM's EIS in their decision on the mine.

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27.17 page 19 Table 1-3: Clarify which are actual and which are projected growth rates?

27.18 page 23 Large commercial and industrial: This section should reflect the possibility of the Alton and Kaiparowits coal fielda not being developed. Suggest rewording to use the work "if".

27.19 page 24 Generation planning: Identify preparer of preliminary power cost study and agency or company who requested the study?

27.20 page 50 Deserado Mine surface facilities: This section should reflect that the surface facilities are located in Scullion gulch and rest on fill material and the runoff will be diverted via a culvert under the facilities. There are sedimentation ponds and diversion ditch around the surface facilties.

27.21 page 66 Coal transport alternative: What are the energy requirements for each alternative method of transporting the coal?

27.22 page 66 Electric railroad: This section should state that the size of the storage barn is 40,000 tons.

27.23 page 108 Energy conservation: We find the documentation of the statement that "individuals are reluctant to incorporate electrical energy conservation into their life styles" inadequate to include such a generalized statement.

27.24 page 113 Measures proposed by applicant: These measures are part of the applicant's proposal and therefore should be presented in the section titled "Applicant's Proposal". Making it easier for the reader to understand the proposed action of the applicant.

27.25 There is no reason to justify why the mitigation measures are being proposed by the applicant.

page 115 Letter K: Paragraph number two should be deleted.

27.26 page 116 Measures required by Federal agencies: The justification of the mitigation measure is not necessary in the list presented. Reasons for mitigation such as an evaluation of an impact belong in the "Environmental Consequences" section.

27.27 page 121 Letter Y: The text should be changed to read: The mining and reclamation plan is submitted to OSM for review and recommendation of an action to the Assistant Secretary for Energy and Minerals.

27.28 page 121 Letter aa and dd: It should be identified as to what agency/bureau's requirements are such that blasting will not occur within 500 feet of buildings, etc.?

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27.29 page 123 Meteorological monitoring: The text should be changed to reflect that TSP and meteorological data are being collected at the Deserado Mine site.

27.30 page 123 Monitoring: A discussion of the subsidence monitoring program for the Deserado Mine should be included in this section.

27.31 page 130 Table 2-13: A definition of short-term, long-term, irreversible, and irretrievable would aid the reader in identifying significant impacts. In addition we are not sure whether these terms have been used consistently from resource to resource.

27.32 page 134 Deserado Mine: The table should include impacts to:

27.33 Topography: subsidence of 4 to 6 feet is expected and that the refuse disposal piles will disturb 600 acres.

27.34 Vegetation: 1,200 acres of vegetation will be destoryed not just 120 riparian acres. Disturbed acres can be revegetated in the time period specified and not returned to native conditions (pinon, juniper habitat).

27.35 Animal life: Impacts to sage grouse and prairie dogs should be evaluated.

27.36 Water resources: Impacts to the ground water system should be evaluated.

27.37 page 161 Climate: Information on the speed, direction, and duration of winds found in air quality could be inserted in this section to clarify the setting. In addition the wind discussion should be expanded to include A & B stability and surface winds. An expanded discussion is needed on precipitation in the Rangely area and quantitative data is needed on mean temperatures to adequately assess the air quality impact.

27.38 page 162 Air quality: TSP values collected at the Deserado Mine during 8 months in 1980 show the 24-hour max is 82ug/m^3 and average 24ug/m^3, this information should be included in the text.

27.39 page 163 Geology: Add a reference to figure 2-11, cross-section of the coal aeams.

27.40 page 166 Soils: The names of the major soil types found at each site and the approximate depth of the soils should be included in the text.

27.41 page 168 Groundwater: Present any water quantity and quality information available on the water pumped from the abandoned Gordon-Staley mine.

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27.42 page 169 Vegetation: Identification of the major vegetation types should be presented by location (i.e., Bonanza site, Rangely site and the Deserado Mine).

27.43 Reference is made to a 980 acre revegetated area at the Rangely site. If there is any data on the productivity, species cover and success of this reclamation, it should be included in the text.

27.44 page 174 Sage grouse: The mine plan states that sage grouse in the refuse disposal area average about 2 per hectare and that studies conducted to date found no leks. However the study missed the prime time to identify leks and Western Fuels is going to resurvey the area this coming April. The section should reflect this.

27.45 page 179 Threatened and endangered species: The statement about ferrets is probably correct, however, it should be expanded to include a discussion that suitable habitat may exist because of the prairie dog towns located in the refuse disposal area and the historical evidence of ferret association with prairie dogs.

27.46 page 180 White River: Where were the 18 species of fish captured? The surveys of nine miles of the White River near the Bonanza site did not identify any endangered species.

27.47 page 187 Minerals: This section should include a discussion that unleased Federal coal exists adjacent to the existing leased coal and PRLA's and that the refuse disposal area overlies unleased Federal coal.

27.48 page 198 Rangely Fire protection: This section states five vehicles are available but only lists three. The correct number should be verified.

27.49 page 217 Special animals: Add a new category, F Black-Footed Ferret (potential habitat).

27.50 page 219 Bonanza site: T&E plant/habitat, soil types, and erosion hazard identification looks wrong; are they off by one line? Define A.O.S.C.

27.51 page 219 Coal delivery: Add to special animals an "F".

27.52 page 219 Overland conveyor: We believe the soil type listed as a "b" should be a "6".

27.53 page 239 Introduction: An impact is discussed if it substantially affects the human environment. Is "substantially" as used here the same as significantly? Our experience indicates that the more definitive preparers are in determining the significance of an impact the clearer it is to the reader as to the importance of the impact.

Comment Letter 27

27.54 page 240 Air Quality: An estimate of particulate emissions for the Deserado Mine should be included in the EIS. Did the modeling for particulates presented in the EIS include emissions from the mine? If not, we believe this should be evaluated to insure that the cumulative air impacts are considered. We believe baseline air quality data collected near Vernal is not necessary representative of Rangely since Vernal is about three times the size of Rangely.

27.55 page 247 Acid precipitation: Why are the effects of acid rain discussed in Appendix 2 and not in the text?

27.56 page 250 Topography: The mine plan discusses the possibility of maximum subsidence over room and pillar areas of up to four feet not 1.6 feet. The tension cracks would reach the surface near the mining areas. Subsidence will affect the Staley-Gordon Road (County Road 65) requiring relocation or increased maintenance. Subsidence would probably be noticeable to the casual observer.

27.57 The Surface Mining Control and Reclamation Act requires a detailed analysis for any surface refuse disposal area. Therefore, such analysis or a summary should be included in the EIS as provided by OSM.

27.58 page 250 Soils: This discussion should point out that the existing soil horizons will be mixed.

27.59 page 255 White River: What would the impact on the White River be if the only water withdrawal was that required by the Deserado Mine?

27.60 page 260 Sage grouse: Densities of sage grouse in the mine area are known (see comments on existing environment). OSM cannot verify that there are no leks until a new survey is done by the applicant.

27.61 page 261 Threatened species: A discussion of the potential for Black-footed ferrets in the area should be included along with the biological opinion.

27.62 page 263 Visual resources: It is stated that the refuse disposal and railroad coal storage area would not meet VRM Class IV objectives. Is this allowed in the short-term? If not, the consequences should be discussed.

27.63 page 264 Grazing: From the data in table 3-10, the Red Wash Grazing allotment is 447 AUM's. The Deserado mine would remove about 10% and the Rangely Plant site about 20%. In the text the statement of 30% for the combination is misleading and confusing. The Deserado mine would remove 54 AUM's from the Spooky Mountain allotment (or 3%).

27.64 page 271 Minerals: The Geological Survey should determine if the refuse disposal area might preclude future leasing of Federal coal in the area.

27.65 page 331 Federal Contacts: OSM's action taken should read, "Assistance was provided in reviewing a Preliminary draft after submission of a mining plan to OSM".

Cultural Resources

27.66 The discussion on pages 5, 10, 119, 181 and 263 should reflect the following information along with what has been presented. The lease areas contain 47 sites, 15 localities, and 48 isolated finds with at least three sites potentially eligible for the National Register, but more detail is needed. The possibility exists that several sites may also be eligible as a group. The PRLA's have not been completely surveyd but there are at least 28 sites, 9 localities and 31 isolated finds with at lease four potentially eligible. An isolated find is defined as one artifact, localities as 2 to 5 artifacts, and sites as 6 or more artifacts or containing structural remains. Consultation is on-going with the Colorado State Historic Preservation Officer to determine eligibility of the potentially eligible sites. Those sites that are determined eligible by the Colorado SHPO, Federal agencies, and Keeper of the National Register of Historic Places will need to have a mitigation olan developed.

Socioeconomics

Comments on the socioeconomic sections of the draft EIS are divided into three parts; 1) an overall review of the methods and conclusions made in the socioeconomic analysis, 2) specific concerns with the data, which are referenced by the draft EIS page number, and 3) discussion of the socioeconomic mitigation presented in the draft EIS.

General

27.67 The EIS does cover the major components of the socioeconomc analysis. Some improvement could be made by setting forth assumptions and the methodology used in the analysis. This point becomes crucial in the discussion of distribution of population related to the project. The distribution as presented appears "in the ballpark" based on traditional modeling techniques, however without knowing what assumptions were made, the reader cannot draw conclusions as to the data's accuracy. For example, the EIS allocates 240 persons directly related to the mine to Vernal (Unit 1) and 764 persons as a result of Unit 2. On the surface, this seems unlikely considering the commuting time and other factors which might draw people to live in Rangely. Therefore, a more complete explanation of factors influencing population distribution should be included in the final EIS.

27.68 The discussion of cumulative impacts is lacking in geographic specificty. There is no individual or in depth discussion of potential aocioeconomic impacts from the Rangely Reservoir, the proposed Synthetic Fuels Pipeline, oil ahale development, or recent coal leases in northwest Colorado. The relationship and timing of these projects plus others (Craig Power Plant Unit #3, for example) to the Moon Lake Project and their potential impact on individual community infrastructures should be discussed in the final EIS beyond the general statement that this project represents 17% of the total imput in N.W. Colorado.

Specific Concerns

27.69 Data presented on housing (p. 194) and attitude surveys (200) appear outdated. Is more recent data available from the Colorado State Department of Local Affairs and/or local entities.

27.70 There is no discussion of local or county land use plans or policies in relation to the proposed project. The discussion on page 271 refers to the physical plant/mine, but not secondary land uses. This may be crucial in terms of population distribution and the provision of public services.

27.71 The conclusion (p. 87) that the workforce would be the same regardless of the plant location may be misleading. The number of workers required for constructing a localized coal transport system versus a 30-plus mile railroad should be discussed in the EIS if there are significant differences.

27.72 There is a discrepancy of employment data between p. 271, table 2-5 and table 4-35 (page 299). Each of these tables lists different peak employment for 1984 making it difficult to assess the socioeconomic impacts. Also, the explanation of the relationship between current available workforce, new employment demands and the impact on other sectors of the economy is unclear.

27.73 It is unclear when comparing Unit 1 and Unit 2 impacts on Vernal's school system whether or not the system is at or "way beyond" capacity (pp. 278, 292). Is there adequate capacity to handle Unit 1 plus mine induced impacts on the schools?

27.74 There is a lack of meaningful assessment as to the adequacy of municipal recreational facilties in the potentially impacted communities. The diacussion on page 305 does not project capacities or cost of the potential expansion of these facilities. This should be included in the EIS.

27.75 The cost estimates for providing county services (p. 281) need an explanation or reference included as to how these figures were derived. At a minimum, the figures should reflect the most recent conditions in both counties.

Mitigation

27.76 Overall, the proposed mitigation "package", p. R-61, provides a good starting point in the discussion of alleviating impacta related to the project. However, neither the EIS nor the applicant has specifically addressed anticipated impacts and mitigation measures specific to those impacts. The final EIS should reflect in more accurate assessment of impacts as well as an analysia of mitigation available to local entities.

27.77 We believe Appendix 11 ahowa a willingnesa on the part of the company to work with local officiala in addressing potential problems of front-end-costs and aocioeconomic impacts. This effort ahould continue with the final results documented in the final EIS.

Response Letter 27

27.1 BLM concurs and information has been included in the Federal Register Notices and news releases on the Final EIS.

27.2 Through consideration of the detail in system comments, it is expected that this document addresses the significant impacts of the Deserado Mine completely.

27.3 The comment is correct; however, communicating large masses of technical data usually involves some confusion. Numbering and lettering systems were discussed in preparation of the Draft EIS and it was editorially decided that either of those systems would only add to confusion. The Table of Contents should be used as a reading aid.

See the Draft EIS, Appendix 7 for alternatives to construction of a power plant.

27.4 The Interagency Task Force on Power Plant Siting used several criteria to evaluate all the Utah plant site alternatives. These criteria included: impacts on community tax structures and government institutional capacity; impacts on water and conflicts with other uses of water; the impacts on air quality, animal life, vegetation, historical and archaeological resources, aesthetics, earthquake potential, soil instability potential, and flooding potential. Also considered were potential impacts on future energy or industrial development; impacts on agricultural, forest, and grazing uses; impacts on present or potential wilderness, wild and scenic rivers and national trails; and the possible conflict with local and regional plans and policies. Costs relating to coal acquisition and transportation, water rights, power transmission, site preparation, plant construction, and mitigation of adverse impacts were also considered. The Colorado site was not part of the Task Force study. A text revision has been made to indicate the criteria used in selection of the Bonanza site. (See the revised Summary "Plant Site Alternatives" of "Alternatives Discussed" in this Final EIS.) The Rangely plant was analyzed because of benefits to be derived from a "mine-mouth" operation.

27.5 The section referred to in the comment is meant to summarize major impacts. The details requested are located in Chapter 2, "Water Source and Transportation Alternatives" in the Draft EIS.

27.6 Pages 4-8 in the Draft EIS are part of the Summary. The Summary is meant to discuss the EIS in a compact form. Headings by different resources and alternatives would involve unnecessary duplication.

27.7 A new section entitled "Riparian Habitat has been added to Chapter 4 "Animal Life" section of "Secondary Influence Zone" in this Final EIS.

27.8 This section serves as a summary and was designed to present the impacts in general terms. More specific data can be found in Chapter 4 of the Draft EIS.

27.9 The discussion was not moved as suggested; however, a discussion was added to "Coal Source Alternatives" section of the Summary in this Final EIS.

27.10 The "Coal Source Alternatives" section of the Summary has been revised in this Final EIS.

Response Letter 27

27.11 "Coal Source Alternatives" section of the Summary has been revised in this Final EIS.

27.12 This is a summary section. The documentation is presented in Chapter 4 of the Draft EIS where detailed impacts are discussed.

27.13 The text has been revised. See "Plant Site Alternatives" of "Summary of Major Environmental Consequences of the Alternative and Proposed Actions" of the Summary in this Final EIS.

27.14 Specific data is not available concerning impacts that would occur to wildlife from truck hauling. The best available information is presented in Chapter 4 under "Animal Life" section of "Environmental Impacts of Power Plant Site and Raw Material Supply System Alternatives" of this Final EIS.

27.15 The No Action Alternative statement on pages 8 and 107 of the Draft is corrected. See the revised Summary "No Action Alternative" section of "Summary of Major Environmental Consequences of the Alternative and the Proposed Actions" in this Final EIS. Also, see the reprinted page 107 of "Minor Text Revisions" section of Chapter 2 in this Final EIS.

The advantage of the No Action Alternative is that the adverse environmental consequences specified in Chapter 4 would not occur.

27.16 Chapter 1, "Introduction" section in this Final EIS has been revised to include this information.

27.17 Table 1-3 has a footnote added to indicate information from 1969 to 1979 is historical and from 1979 to 1994 is projected.

27.18 Chapter 1 "Large Commercial and Industrial" section of "Need for Power" in this Final EIS has been revised.

27.19 The parties have been identified and noted in the revised Chapter 2 "Purpose and Need for the Project" section in this Final EIS.

27.20 The text has been revised. See the reprinted page 58 of the "Minor Text Revisions" section of Chapter 2 in this Final EIS.

27.21 The energy requirements for each alternative method are discussed in the Draft EIS, Appendix 20, Net Energy Analysis and Cost Comparison of Moon Lake Project Alternatives.

27.22 The text has been revised. See the reprinted page 70 of the "Minor Text Revisions" section of Chapter 2 in this Final EIS.

27.23 The EIS energy conservation analysis is somewhat generalized and does not apply to everyone. That, however, does not detract from its validity. It is a factual presentation which references several noteworthy publications on the subject. Generally, people are reluctant to modify their lifestyles to accommodate energy conservation and load management as stated in the General Accounting Office report to Congress (Comptroller General, 1979).

27.24 Reference to this section was added to Chapter 2, "Applicant's Proposed Action" in this Final EIS. See the reprinted page 35 in the "Minor Text Revisions" section of Chapter 2. The justification was added to help eliminate discussion of impacts that the listed measures would mitigate.

27.25 The mitigation measures are to be retained. See Item "k", "Measures Proposed by Applicant" section of "Standard Measures", Chapter 2 in this Final EIS.

27.26 See Letter Response 27.25.

27.27 The text has been revised. See Item "y", "Measures Required of the Applicant by Federal Agencies" section of Chapter 2 in this Final EIS.

27.28 The text has been revised. See Items "aa" and "dd", Measures Required of the Applicant by Federal Agencies" section of Chapter 2 in this Final EIS.

27.29 The text has been revised. See "Meteorological Monitoring" section of "Monitoring and Decommissioning" of Chapter 2 in this Final EIS.

27.30 A new section entited "Subsidence Monitoring Program" has been added to Chapter 2 in this Final EIS.

27.31 These terms are introduced on page 124 of the Draft EIS. Table 2-13 in the Final EIS has been revised to reflect this information.

27.32 Table 2-13 in the Final EIS has been revised to include this information.

27.33 Table 2-13 in the Final EIS has been revised to include this information.

27.34 Table 2-13 in the Final EIS has been revised to include this information.

27.35 Table 2-13 in the Final EIS has been revised to include this information.

27.36 Table 2-13 in the Final EIS has been revised to include this information.

27.37 Revisions to the "Climate" section of "Plant Site and Raw Material Supply Systems," Chapter 3 have been made where data was available. The wind data was clarified, but no surface data is available.

27.38 Table 3-1 of this Final EIS has been revised to include this information.

27.39 A reference to figure 2-11 has been added to "Geology-Paleontology" section of Chapter 3 in this Final EIS.

27.40 The text has been revised. See "Soils" section of Chapter 3 in this Final EIS.

27.41 To date, no water quality samples nor flow data have been taken of the water in the Staley-Gordon Mine.

27.42 The text has been revised. See "Vegetation" section of Chapter 3 in this Final EIS.

27.43 Data on productivity of the area has been added to "Artificially Seeded Areas" section of "Vegetation" in Chapter 3 in this Final EIS.

27.44 The text has been revised. See "Sage Grouse" section of "Plant Site and Raw Material Supply Systems" of Chapter 3 in this Final EIS.

27.45 The text has been revised. See "Threatened and Endangered Species" section of "Plant Site and Raw Material Supply Systems" of Chapter 3 in this Final EIS.

27.46 The fish were captured by various investigators in different years along the White River from its confluence with the Green River to about 19 miles northeast of Rangely (approximately 60 miles upstream from the confluence).

27.47 The text has been revised. See "Minerals" section of "Plant Site and Raw Material Supply Systems" in Chapter 3 in this Final EIS.

27.48 The number stated in the text is correct. The other two items of equipment are a 500-gpm pumper and a 750-gpm pumper.

27.49 The "Linear Profile Key" has been revised to include this information in Chapter 3 of this Final EIS.

27.50 The text has been revised. See Item 3 of "Text Revisions to Linear Profiles" section in Chapter 3 of this Final EIS.

27.51 The text has been revised. See Item 4 of the "Text Revisions to Linear Profiles" section in Chapter 3 of this Final EIS.

27.52 The text has been revised. See Item 5 of the "Text Revisions to Linear Profiles" section in Chapter 3 of this Final EIS.

27.53 The text has been revised. See "Introduction" section of Chapter 4 in this Final EIS.

27.54 A particulate emission estimate has been added to Chapter 4, "Estimated Emissions" section of "Air Quality" in this Final EIS. The modeling did include emissions from the mine and the results are given in Chapter 4, "NAAQS" section of "Air Quality" in this Final EIS. The Vernal data was used as a baseline to insure a conservative analysis. Particulate data collected near the Deserado Mine has been used for the Rangely site in this Final EIS (table 4-4).

27.55 Because much of the discussion on effects of acid rain is generic and not site specific, it was determined that it should be placed in the appendix and not the text.

27.56 The text has been revised. See "Topography" section of Chapter 4 in this Final EIS.

27.57 The text has been revised. See "Topography" section of Chapter 4 in this Final EIS.

27.58 The text has been revised. See "Soils" section of "Environmental Impacts of Power Plant Site and Raw Material Supply System Alternatives" of Chapter 4 in this Final EIS.

27.59 Additional data concerning White River withdrawal for the Deserado Mine has been added to the text. See "Surface Water" section of "Water Resources" in Chapter 4 of this Final EIS.

27.60 The text has been revised. See "Animal Life" section of "Environmental Impacts of Power Plant Site and Raw Material Supply System Alternatives" of Chapter 4 in this Final EIS.

27.61 The text has been revised. See "Threatened and Endangered Species" section of "Environmental Impacts of Power Plant and Raw Material Supply System Alternatives" in Chapter 4 of this Final EIS.

27.62 When Visual Resource Management objectives cannot be met, mitigation is proposed to minimize the impacts. The fact that VRM objectives cannot be met is included in the list of adverse impacts for consideration by the decision-makers. It is then the decision-makers responsibility to decide if the benefits outweigh the cost (including visual resource cost) of the project.

27.63 The text has been revised. See "Grazing" section of "Environmental Impacts of Power Plant and Raw Material Supply System Alternatives" in Chapter 4 of this Final EIS.

27.64 The text has been revised. See "Minerals" section of "Environmental Impacts of Power Plant and Raw Material Supply System Alternatives" in Chapter 4 of this Final EIS.

27.65 The text has been revised. See first page of revised Chapter 5, in this Final EIS.

27.66 The numbers presented in the Draft EIS are those that may be impacted by surface disturbance or subsidence, not those that are within the permit boundary. Mitigation will be developed as required by 36 CFR 800.

27.67 Because of the limits placed on EIS size, technical reports and data are not included. This information is presented in "Burns and McDonnell, 1979a" as noted in the bibliography of the Draft EIS. This document may be reviewed at the BLM Colorado State Office in Denver, at local government offices in Rio Blanco County, and at the CWACOG in Rifle, Colorado.

See related Letter Responses 36.21, 36.22, and 36.77.

27.68 It is not the purpose of the EIS to provide encyclopedic descriptions of all projects affecting the project area(s). The impacts from other projects such as you reference are reflected in the discussions of cumulative impacts. Considering the uncertainty of the timing of these projects and the inexact

27.68 (cont.) nature of socioeconomic prediction, the estimates presented in the EIS are reasonable. They provide decision-makers and the public with data sufficient to make an informed decision.

27.69 The housing data (page 194, Draft EIS) from the Department of Local Affairs is from a 1978 source, and is supplemented with 1979 data from the Rangely Town Clerk. The Opinion Sampling Research Institute, page 200, is the most recent controlled attitudinal sampling of socioeconomic issues. These data are the best available relative to a comparative analysis in the project area.

27.70 Please refer to Chapter 3, page 187 of the Draft EIS, for discussion of community and county land use plans. The Draft EIS recognizes that population-induced growth would be accomplished within the context of these existing land use plans. Specific land use plans have been analyzed in Chapter 4, page 271, only where conflicts have been identified.

27.71 This change has been made in the Final EIS. See the reprinted page 87 of "Minor Text Revisions" section of Chapter 2.

27.72 The total employment number on page 271 of the Draft EIS has been corrected to 1,035.

The totals given in table 4-35 are for construction and operation of units 1 and 2, and, therefore, do not correspond to the number given in the unit 1 scenario discussion on page 271.

27.73 The discussion on page 278 of the Draft EIS was based on the unit 1 construction scenario. The discussion on page 292 was based on the units 1 and 2 scenario. The text regarding the unit 2 scenario has been revised to clarify capacities. (See "Local Government Impacts, Units 1 and 2 Scenario" of "Socioeconomic Impacts" in Chapter 4 of this Final EIS.) There is adequate capacity in the Rangely District to handle projected enrollment increases with a unit 1 and 2 scenario (regardless of the plant site selected) which includes the Deserado Mine/coal supply system. In the Uintah District, school facilities are already being used at capacity and new construction would be required under each scenario/alternative.

27.74 The text has been revised to include assessment of municipal recreational facilities and projected capacities. See "Recreation" sections of "Secondary Influence Zone" in Chapters 3 and 4 of this Final EIS.

Estimates of expansion costs are not currently available. Demonstrated future demand will dictate expansion and resulting cost requirements.

27.75 The cost estimates, as stated in the Draft EIS, were based on 1979 per-capita cost of government as provided by the respective county governments (i.e., actual expenditures divided by estimated population equals per capita costs).

27.76 The inexact nature of socioeconomics, differing opinions and interpretations, and competing points of view prohibit conclusive enumeration of all impacts. The analysis presented provides an adequate basis for informing the decision-makers and the public of the nature and magnitude of the anticipated impacts. Satisfactory effective mitigation of the impacts requires that the applicant and the affected parties (local governments) cooperate and through negotiation arrive at real and enforceable measures. Appendix 11 of this Final EIS contains the updated information regarding definition of the mitigation of socioeconomic impacts.

Response Letter 27

27.77 See Letter Response 27.76.

Comment Letter 28

DESERET
Generation & Transmission Cooperative
8722 South 300 West Box BB Sandy, Utah 84070 (801) 566-3933

February 25, 1981

Mr. Greg Thayn, Team Leader
U.S. Bureau of Land Management
University Club Building
136 East South Temple
Salt Lake City UT 84111

RE: Moon Lake Project
78-084-4-000

Dear Mr. Thayn:

Please find attached the formal submittal of Deseret's comments on the Draft Environmental Impact Statement for the Moon Lake Power Plant Project, Units 1 and 2.

The attached comments address the following six general topics: (1) Transmission Routes; (2) Water Availability; (3) Executive Order 11990; (4) Socioeconomics; (5) Section 7 Review by U.S. Fish & Wildlife Service; and (6) Stipulations and Mitigation Measures.

If Deseret can be of further assistance in the Draft EIS process or if we can clarify any of the attached comments, please contact me.

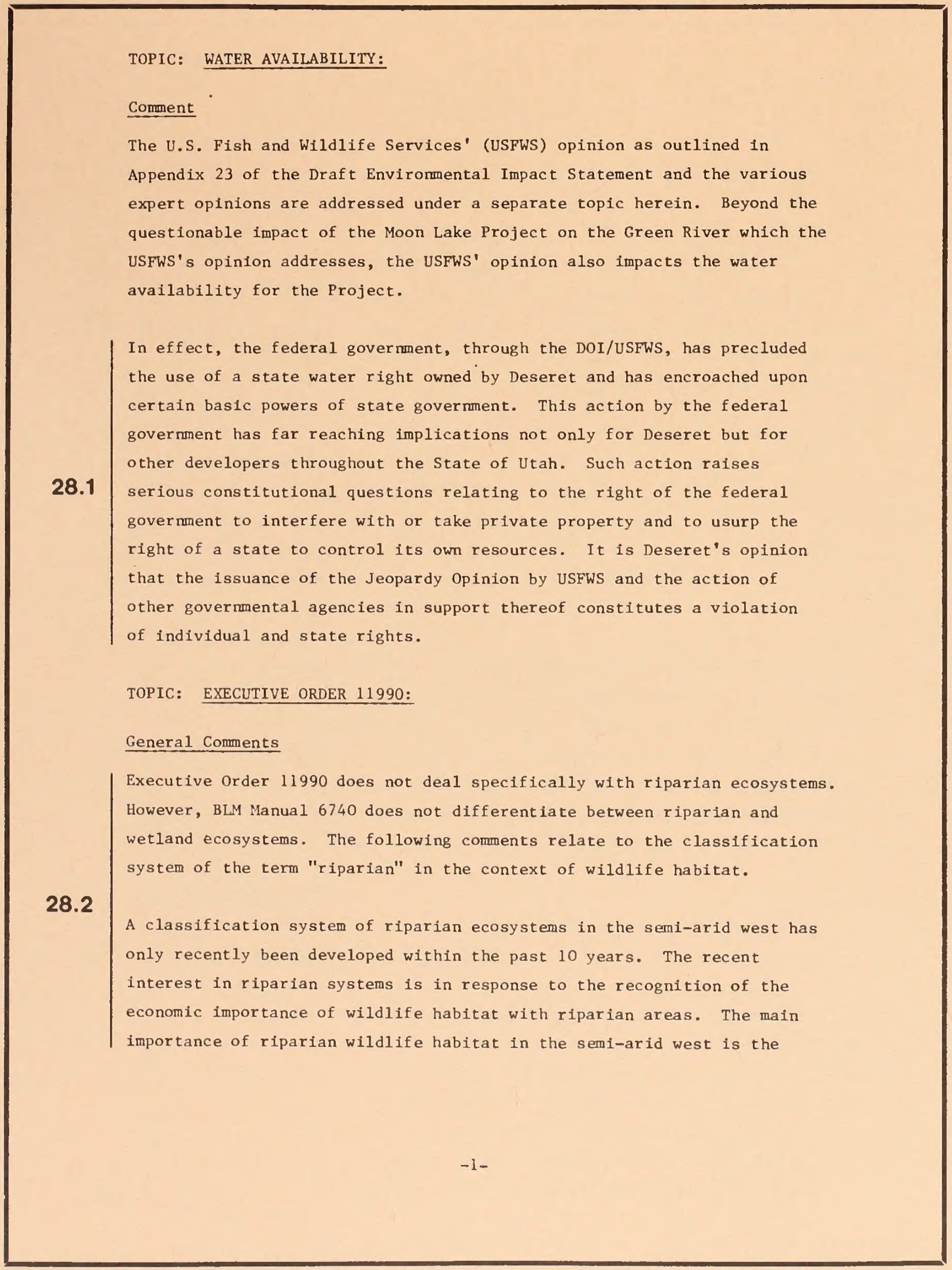
Sincerely,

Merrill J. Millett

Merrill J. Millett
General Manager

MJM/rab

cc: K. N. Neuschwander
D. J. Langford
D. C. Minson
G. H. Richins



TOPIC: WATER AVAILABILITY:

Comment

The U.S. Fish and Wildlife Services' (USFWS) opinion as outlined in Appendix 23 of the Draft Environmental Impact Statement and the various expert opinions are addressed under a separate topic herein. Beyond the questionable impact of the Moon Lake Project on the Green River which the USFWS's opinion addresses, the USFWS' opinion also impacts the water availability for the Project.

28.1 In effect, the federal government, through the DOI/USFWS, has precluded the use of a state water right owned by Deseret and has encroached upon certain basic powers of state government. This action by the federal government has far reaching implications not only for Deseret but for other developers throughout the State of Utah. Such action raises serious constitutional questions relating to the right of the federal government to interfere with or take private property and to usurp the right of a state to control its own resources. It is Deseret's opinion that the issuance of the Jeopardy Opinion by USFWS and the action of other governmental agencies in support thereof constitutes a violation of individual and state rights.

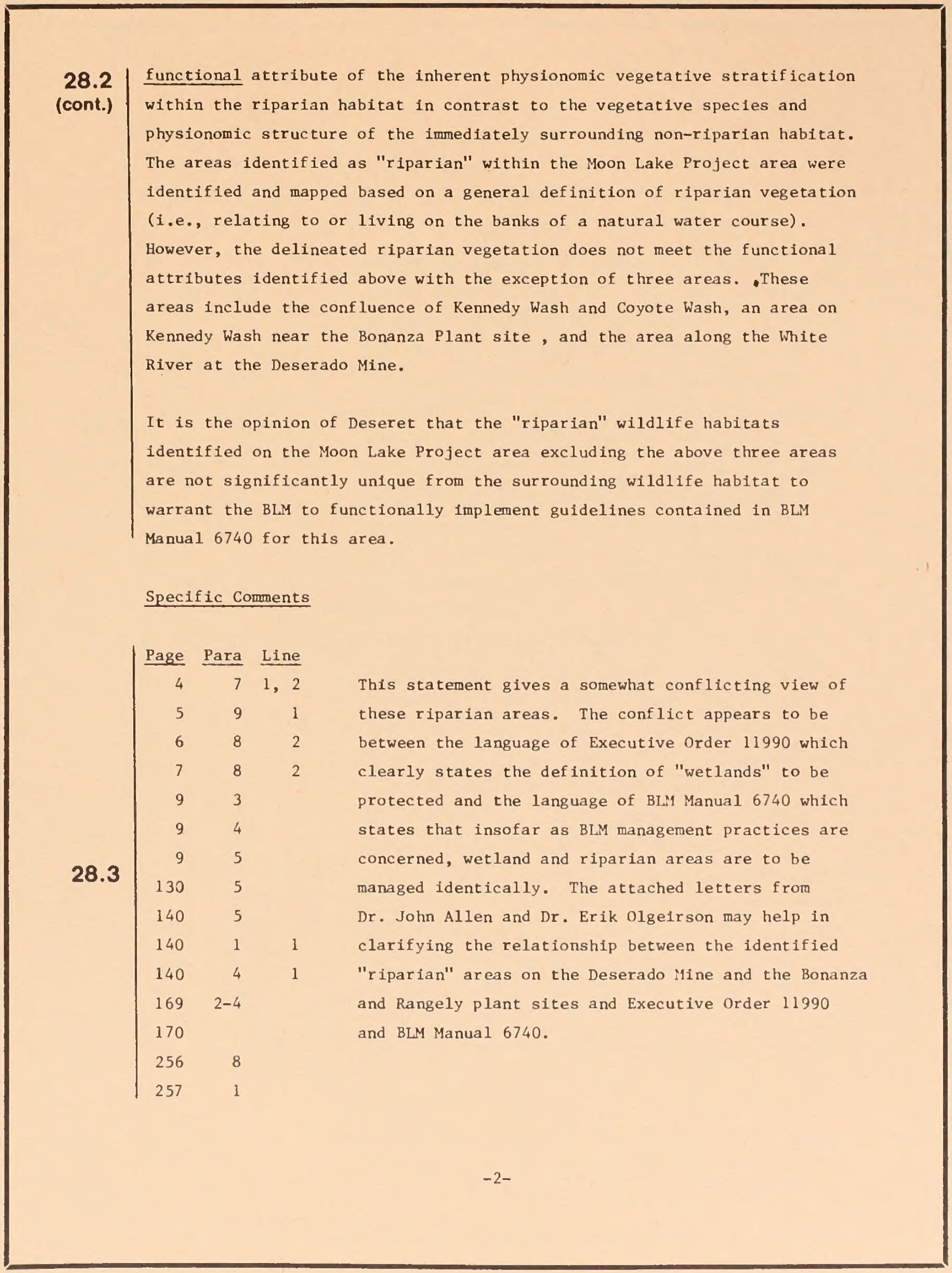
TOPIC: EXECUTIVE ORDER 11990:

General Comments

28.2 Executive Order 11990 does not deal specifically with riparian ecosystems. However, BLM Manual 6740 does not differentiate between riparian and wetland ecosystems. The following comments relate to the classification system of the term "riparian" in the context of wildlife habitat.

A classification system of riparian ecosystems in the semi-arid west has only recently been developed within the past 10 years. The recent interest in riparian systems is in response to the recognition of the economic importance of wildlife habitat with riparian areas. The main importance of riparian wildlife habitat in the semi-arid west is the

-1-



28.2 (cont.) functional attribute of the inherent physionomic vegetative stratification within the riparian habitat in contrast to the vegetative species and physionomic structure of the immediately surrounding non-riparian habitat. The areas identified as "riparian" within the Moon Lake Project area were identified and mapped based on a general definition of riparian vegetation (i.e., relating to or living on the banks of a natural water course). However, the delineated riparian vegetation does not meet the functional attributes identified above with the exception of three areas. ,These areas include the confluence of Kennedy Wash and Coyote Wash, an area on Kennedy Wash near the Bonanza Plant site , and the area along the White River at the Deserado Mine.

It is the opinion of Deseret that the "riparian" wildlife habitats identified on the Moon Lake Project area excluding the above three areas are not significantly unique from the surrounding wildlife habitat to warrant the BLM to functionally implement guidelines contained in BLM Manual 6740 for this area.

Specific Comments

28.3

Page	Para	Line	
4	7	1, 2	This statement gives a somewhat conflicting view of these riparian areas. The conflict appears to be between the language of Executive Order 11990 which clearly states the definition of "wetlands" to be protected and the language of BLM Manual 6740 which states that insofar as BLM management practices are concerned, wetland and riparian areas are to be managed identically. The attached letters from Dr. John Allen and Dr. Erik Olgeirson may help in clarifying the relationship between the identified "riparian" areas on the Deserado Mine and the Bonanza and Rangely plant sites and Executive Order 11990 and BLM Manual 6740.
5	9	1	
6	8	2	
7	8	2	
9	3		
9	4		
9	5		
130	5		
140	5		
140	1	1	
140	4	1	
169	2-4		
170			
256	8		
257	1		

-2-

28.3 (cont.)

Page	Para	Line
256	8	
257	1	

Loss of riparian habitat is not in conflict with Executive Order 11990. Executive Order 11990 does not mention riparian habitat, particularly the phreatophyte type of riparian found along the various components of the Moon Lake Project. The "conflict" is between Executive Order 11990 and the attempt of BLM Manual 6740 to implement its provisions.

TOPIC: SOCIOECONOMIC AND LAND USE:

General Comments

28.4

A specific socioeconomic Mitigation Plan is attached as an enclosure to this letter and is hereby submitted to BLM/REA as Deseret's proposed measures to mitigate the Project's socioeconomic impact on the area. This Plan outlines, in a very specific manner, the impacted areas which Deseret will mitigate. Furthermore, the Plan also states that if additional impacts occurs beyond what has been estimated by the DEIS, measures will be taken with the affected community to reach a measure of mitigation satisfactory to all parties.

While land use is not a specific area of major concern, some areas of the DEIS need clarification regarding the proposed reservoir(s) on the White River and their relationship to agricultural water use.

Specific Comments

28.5

Page	Para	Line
5	1	1

If an imbalance is estimated, all factors should be evaluated. To do otherwise does not adequately state the true impact. The reader is left with the impression that revenue versus expenditure imbalances will in fact occur. This may not be true due to the additional tax revenue sources excluded from consideration as indicated in the last sentence of the paragraph. In addition to these sources, transmission line length taxes are also not included as revenue resources.

28.6

Page	Para	Line
7	3	
11	2	
138	6	
268	7	
269	1	

There are some inconsistencies in the mathematics of irrigated land as presented in this paragraph. The paragraph states that 400 acres of irrigated land represents 20 percent of the irrigated land in Rio Blanco County. This would mean that there are 2,000 acres of irrigated land in Rio Blanco County. The paragraph further states that 176 acres have been identified as prime farmland and that this 176 acres is 7 percent of the prime farmland near Rangely. This can be interpreted to mean that there are 2,514 acres of prime farmland in the Rangely area alone. This amount of prime farmland exceeds the total amount of irrigated land in the county by 514 acres. If this is an inconsistency it should be corrected.

28.7

Page	Para	Line
7	7	
138	6	
256	3	
268	7	
269	1	
269	2	

If one assumes that the statement in page 7, paragraph 3 (above comment), that development of Taylor Draw and Wolf Creek reservoirs would each inundate about 20 percent of the irrigated land in Rio Blanco County is accurate, then this loss when coupled with the land potentially retired from use due to purchase of upper White River basin irrigation rights (17 percent) becomes significant. According to this scenario, some 87 percent of the irrigated farmland in Rio Blanco County could be lost due to the full development of the Taylor Draw and Wolf Creek Reservoirs.

Page	Para	Line
138	6	6

28.8

Land Use

White River Agricultural Water - This reference to the "occasional retirement of agricultural land" is misleading. If agricultural water were used it would be stored in the reservoir(s) for utilization by a power plant at the Rangely site. The land for which it was originally intended would be retired from use for the entire life of the project.

TOPIC: U.S. FISH AND WILDLIFE BIOLOGICAL OPTION:

General Comment

The specific comments below represents the view of an expert who has extensively studied these comments. Deseret G&T concurs with these views:

Specific Comment

Page	Para	Line
6	1	
9	8	
130	8	
262	1	
Appendix	23	

28.9

Deseret has contacted Dr. Paul Holden of Bio/West, Inc., a recognized expert on endangered fishes of the Green River. Dr. Holden disagrees with the USFWS' opinion that the Moon Lake Project, by itself is likely to jeopardize the continued existence of the Colorado squawfish, the himpback chub and the bonytail chub. Dr. Holden's comments concerning the USFWS biological opinion are as follows:

28.10

Page 4-150, paragraph 6: "The opinion indicates that" ....flows of the Green River are essential to the Colorado River in providing habitat for Colorado squawfish, humpback chub, and bonytail chub."

Page	Para	Line
9	8	

28.10 (cont.)

"The Green River provides water to the Colorado River for only a short section (20-25 miles) in Cataract Canyon. Colorado squawfish and humpback chub have been found in this area, in 1980 by Fish and Wildlife Service personnel (Colorado River Fishes Project). No bonytail chubs have been found in Cataract Canyon. Both Colorado squawfish and humpback chubs are found in the Colorado River above the mouth of the Green River. Therefore, I believe the statement in the Opinion is not true, Green River flows are not 'essential' to providing rare fish habitat in the Colorado River. The statement would be correct if it read '...Yampa River flows are essential to rare fish habitat in the Green River.'"

28.11

Page R-151, paragraph 4: "The Opinion states that 'records .... over the past years show the (rare) fishes have been declining.'

"It is unclear what records are being used, over what period of time and concerning which fish. The present status of the three rare species is not the same in the Green River. The bonytail is nearly extinct, perhaps 'biologically extinct' because too few exist in the wild to provide reproduction. Data on humpback chub population shows losses of fish directly impacted by Flaming Gorge Dam, but records are not complete enough to show 'declining' populations in other areas. Colorado squawfish numbers and reproductive success in the Green River show no recent decline, although Colorado River populations, especially reproductive success, have declined since before the mid-1960s. Therefore, at present, bonytails are declining, Colorado squawfish populations appear fairly static, and insufficient data is available concerning humpback chubs. See the discussion of endangered fishes in the Draft White River Dam Project EIS for further information."

28.11 (cont.) "This paragraph indicated all researchers of the endangered Colorado fishes agree that water depletion should stop. Obviously, I disagree to the extent that sufficient habitat requirements are known to show that the cumulative effect of future depletions is the most serious problem. A 30-cfs withdrawal could not be shown to be a problem by itself at this time, except for the bonytail chub. Flows are already lower than necessary for the bonytail; it is not known if present flows could be made suitable."

28.12 Page R-151, paragraph 5: "The Opinion states 'the immediate effect (of flow depletion - 30 cfs) is the reduction of required habitat.'

"I doubt very seriously the loss of 30 cfs could be shown to reduce required habitat by a measurable amount at this time. Daily flow fluctuations from Flaming Gorge Dam could be shown to be much more adversely measurable in terms of habitat reduction.'

"The following parts of paragraph 5 continue with effects of flow depletions on the river and rare fish. These statements are true only if the author is talking about fairly large depletions, more than 30 cfs. My major concern is that the Opinion suggests 30 cfs will cause all these problems, rather than the cumulative effect of this and other proposed projects."

28.13 Page R-152, paragraph 1: "The Opinion discussed a small change in salinity and how the fishes live in waters with greater salinity. The same type of agrument could be presented for 30 cfs reductions in flow. A loss of 30 cfs in flow during any one of the last 10 years would not have the affected the endangered fishes, either positively or negatively."

28.14 Page R-152, paragraph 5: "The Opinion lists various recent studies that included the rare fish. Left out was Holden and Selby (1979a), the aquatic studies funded by the Moon Lake Project. Considerable valuable information was found since it was the first study in the Green River below Jensen to sample monthly, before, during, and after Colorado squawfish spawning. Holden and Selby (1979b) studied the White River for the Moon Lake Project. That study was also not mentioned in the Opinion."

Complete references are as follows:

Holden, P.B. and D. A. Selby, 1979a. Aquatic biology study on a raw water intake structure in the Green River, Utah. BIO/WEST PR-22-1, Logan, Utah.

Holden, P.B. and D. A. Selby, 1979b. An aquatic biology survey of the White River (Colorado) to assess potential impact of a proposed water withdrawal system. BIO/WEST PR-21-1, Logan, Utah.

28.15 Page R-155, paragraph 3: "Similar comments to those made above for the Green River can be made concerning depletions in the White River. The rather small depletion caused by the proposed Moon Lake Project would not jeopardize the endangered fishes by itself, but the cumulative effect of this depletion and other proposed upper Green River developments, would jeopardize the species in my opinion."

TOPIC: STIPULATIONS AND MITIGATIONS

The time constraints outlined by the stipulations or mitigation measures could have serious repercussions on contractors with regard to their ability to complete the job in the time available. It is Deseret's understanding that construction constraints can be negotiated in order to facilitate the most efficient use of time and money while still protecting demonstrated wildlife values. It is Deseret's further understanding that the negotiability of the requirements which impact construction will be provided for the Wildlife Mitigation Plan.

Specific Comments

	Page	Para	Line	Comments or Suggested Change
28.16	116	3	2	Item "a" should be modified to read ".... construction of project linear facilities..."
28.17	117	6	Item "f"	This stipulation concerning the bald eagle is inconsistent with the USFWS biological opinion (Appendix 23) which states that they ".... do not believe there would be significant impact to the species from the proposed project..." As for the golden eagle, it should be expressly pointed out that it is NOT classified as a threatened or endangered species. The paragraph is unclear on this point and leads the reader to believe that the bald and golden eagles are both listed as threatened or endangered.

Specific Comments

	Page	Para	Line	Comments or Suggested Change
28.18	318	6		Item 8 and 9: Deseret disagrees that all the restrictions listed in Table 4-44 require mitigative action. Expert testimony is available if required to isolate those areas where Deseret estimates that required mitigation is necessary.

	Page	Para	Line	
28.19	323	3	3	Item 11: It is requested that the word "an active," be inserted between the words, "protect...," and "....golden." so the phrase reads, "as to protect an active golden eagle nest."

Transmission Routes, General Comments

Deseret feels that comments must be made on the transmission corridor selection and evaluation sections in the DEIS. These comments are necessary to set forth Deseret's concerns regarding the viability of the evaluation process used in the transmission corridor selection and to question the data and/or lack of data that went into the evaluation process.

The emphasis by BLM-USFS in the DEIS to promote double circuiting of high voltage transmission line by Deseret in rough and mountainous terrain, tower sharing of high voltage transmission towers with Utah Power & Light Co. (Hunter 3 & 4, 345 kV transmission line) and the sharing of corridors has prompted Deseret G & T to restate its position and develop a factual discussion of these three issues.

Double circuiting of transmission lines through mountainous terrain would significantly decrease the reliability of the system by increasing the risk of line outage due to failure of both circuits from lightning, icing, landslides induced by earthquakes or unstable soil, fire induced outages, collision from aircraft or acts of terrorism and sabatoge to list some actions that could take a line(s) out of service.

The proposed Moon Lake plant will be at the end of a long radial 345 kV transmission line and the risk of losing the plant (due to a transmission line outage) tied to the North-South transmission system of UP&L could cause a major unstabilizing condition that could conceivably cause an area-wide-blackout. Deseret G & T cannot assume this kind of risk. Outages that could occur would be similar to the fire induced outage which tripped the UP&L Co. 345 kV double circuit transmission line near the Point of the Mountain on January 8, 1981, causing a very disruptive area-wide blackout lasting several hours. Also line outages caused by collision from aircraft where one circuit is taken out by the collision with the conductor falling into the adjacent circuit taking it out. UP&L Co. lost a 138 kV line near the Salt Lake City International Airport recently and a major outage was narrowly averted.

Tower sharing would have the same reliability problems as described above with the additional problem that Deseret could be held liable for damages resulting from transmission line induced outages of the backbone transmission system by a failure of Deseret's lines as a result of conditions or causes not necessarily under Deseret's control as discussed above and referenced in Appendix 6 of the DEIS.

Deseret could support the concept of corridor sharing, as Deseret would in fact share corridors with a Moon Lake Electric Association's 69 kV line and (potentially) with a Pacific Gas Transmission Corporation pipeline in Deseret's preferred transmission corridor over the mountainuous terrain in segments 11 and 25.

The sharing of transmission line corridors with UP&L could be an acceptable alternative where sufficient corridor width is available to allow the structures and lines to be spaced so that the failure of any one line or tower(s) would not take out an adjacent line in the same corridor. This type of failure with resulting loss of both lines did occur with UP&L's 230 kV lines between the Ben Lomond Substation and the Naughton Plant where one line failed and took out the adjacent parallel line.

The discussion in the DEIS and evaluations of the several transmission line segments for the Bonanza to Mona 345 kV line indicates the preferred transmissions route as proposed by Deseret over the high country, (corridor segments 10, 11, 25); as being more economical and environmentally acceptable than other combinations through the area.

28.20 In the analysis of segment 19 in the Argyle Canyon area, no mention is made in the evaluation section or written description of the large summer home area that exists and is being further developed in this area. Was this development overlooked because it is on private land? Very strong emphasis was placed on the impacts of the 345 kV line passing within 4 to 5 miles of the summer home areas near segment 37 west of Eccles Canyon.

28.21 Deseret, because of legal and technical reasons, cannot accept the BLM-USFS concept of tower sharing with UP&L in Sowers Canyon or joint use of UP&L's Hunter 3 & 4 transmission line to be built in Spanish Fork Canyon. It has been Deseret's experience that such an agreement could not be successfully negotiated within the time frame required for the construction of the proposed transmission lines.

28.22 In the event that the BLM-USFS DEIS preferred route is proposed in the Final EIS as the Agencies' preferred routes, Deseret would have to accept this selection under protest even though it would mean a substantial construction and operational cost penalty, along with the increased liability this action would

28.22 (cont.) impose upon Deseret. Deseret would expect the USFS and BLM to assume the full responsibility for the increased liability imposed upon Deseret by this action, just as Deseret must be responsible and held accountable for our actions in our decision-making process.

Deseret has been asked by the EIS team if Deseret would be willing to work with the Land Managing Agencies to develop transmission line routing guideline cirteria. Deseret would be willing to work with the Land Managing Agencies, other utilities, interconnected system reliability councils (WSCC), and FERC to develop guidelines for corridor planning by the Land Managing Agencies.

Deseret firmly believes that their preferred route meets, in every applicable way, the intent of the Federal Land Policy and Management Act of 1976 with regard to corridor selection across federally controlled lands and that this is reflected in Appendix 12 of the DEIS. Deseret suggests that the BLM-USFS preferred transmission route comparative evaluation in the DEIS be re-evaluated for the reasons outlined in the specific comments below:

Specific Comments

	Page #	Para	Line	Comment or Suggested Change
28.23	4	2	3	While the feasibility of the other alternatives is dependent on private negotiations, it should be emphasized that the success of these negotiations is problematical.
28.24	8	2	1-3	Suggest that these lines be rewritten as follows: All of the transmission system routing alternatives would have similar impacts but the magnitude would vary depending upon the amount of each resource along the routes and final location of the ROW within the corridor.
28.25	8 127 317	4 4 1		This paragraph fails to accurately reflect statements made within the text of the DEIS; (1) The conflicts identified in this paragrpah were considered in the transmission alternative analysis methodology outlined in Appendix 12, page R-65.

Specific Comments (Cont.)

28.25 (cont.)

(2) According to the evaluation criteria outlined on page R-65 and R-66, Deseret's preferred routing from Bonanza Site to Tank Hollow and from Tank Hollow to Mona (page R-69)".... Would create the fewest environmental impacts; Section 505 of FLPMA states "Each ROW shall contain...terms and conditions...necessary to ...require location of the ROW along a route that will cause least damage to the environment...".

(3) From Rangely to Tank Hollow (page R-70) there is less than 1 percent difference between Deseret's preferred route and the Upalco-Sowers-Price Canyon route preferred by BLM-USFS.

(4) If the Upalco-Sowers-Price Canyon route were chosen, Deseret's preferred alternate to Water Hollow via Eccles Canyon: ...would create the fewest overall environmental impacts." (Page R-69).

(5) The BLM-USFS route to Water Hollow via Price Canyon Dairy Fork (page R-69) would create 30 percent more impacts than Deseret's preferred alternate.

(6) Page R-71 states that for Unit 2, the Upalco-Fruitland routing would have the fewest environmental impacts. This Unit 2 routing coincides with Deseret's preferred route for Unit 1 and would have the fewest environmental impacts in both cases from either plant site. It seems illogical that BLM-USFS could prefer the Upalco-Sowers-Tank Hollow-Mona routing for both units if the reqirements of Section 505(b) (v) of FLPMA and the conclusions reached on pages R-65 and R-66 and R-69 were evaluated.

(7) The dollar losses of timber amounting to $304/year (both Units 1 and 2) for the life of the project seem to be important enough to mention in the DEIS Summary under the heading of a Major Environmental Consequence and also within the text of the DEIS. It only seems logical then that the Summary should include the following approximate costs of following BLM-USFS preferred route (as outlined above) for Unit 1:

Specific Comments (Continued)

	Page #	Para	Line	Comment or Suggested Change
			28.25 (cont.)	(7) (Continued) (a) An increase in total circuit miles by 10 miles of 345 kV single or double-circuit line from either Bonanza or Rangely sites. (b) The additional cost of construction (using data from Table 2-10, page 101 of DEIS) of this extra 10 miles of line is $2,486,000 for single-circuit 345 kV, and $4,610,000 for double circuit 346 kV. (c) In addition to the cost listed in item b (above) the additional 10 miles of line would also incur costs associated with line loss, design, right-of-way, etc. (8) The Federal Land Policy and Management Act (FLPMA) in Section 503 stipulates that "...economic efficiency and good engineering practice must be considered in selecting routes and granting ROW across federally controlled lands...: Apparently, this stipulation among others has been ignored in selecting the BLM-USFS preferred routes as shown in the DEIS.
28.26	104	4	23	This statement should also recognize that Deseret and Pacific Gas Transmission Corp. have met jointly with BLM and USFS and have agreed that this option is technically feasible and in the best interest of both Deseret and PGTC.
28.27	127	4	3	Identification of USFS-BLM route as having the fewest environmental impacts is inconsistent with statements made on page R-69 of Appendix 12. Section 505 (b) (v) of FLPMA requires location of the ROW along a route that will cause least damage to the environment. (See also comments on page 8, paragraph 4 of DEIS).
28.28	127	5		The "disadvantages discussed here were part of the evaluation criteria used on pages R-64 and R-66 of Appendix 12 to select Deseret's preferred route as being the route which "would create the fewest environmental impacts" on page R-69. (See also comments on page 8, paragraph 4 of DEIS).
28.29	128	5		BLM-REA should be aware of ramifications of the recent wide-spread power blackout in Utah and adjoining states.

28.1 The opinion of the USFWS is required by law, under the Threatened and Endangered Species Act. The BLM and other Federal government agencies must abide by these opinions. The resolution of constitutional questions relating to Federal land management authority is outside the scope of this EIS.

28.2 Thank you for your comment. This information will be used in the decision-making process. Please refer to Letter Response 2.1.

28.3 Please refer to Letter Response 2.1.

28.4 This new information has been included in Appendix 11 of this Final EIS.

28.5 This information will be used in the decision-making process.

28.6 The text is changed to reflect this comment. See the revised Chapters 3 and 4, "Land Use: section under "Environmental Impacts of Power Plant Site and Raw Material Supply System Alternatives" of this Final EIS.

28.7 Agricultural impacts as a result of reservoir inundation are addressed under "Agriculture" pages 268 to 269 of the Draft EIS.

28.8 Refer to Letter Responses 28.7.

28.9 To fully understand the basis for the USFWS biological opinion on the Moon Lake power plant, it is necessary to define the phrase "jeopardize the continued existence of." This is defined by USFWS as an "activity or program which reasonably would be expected to reduce the reproduction, numbers, or distribution of a listed species to such an extent as to appreciably reduce the likelihood of the survival and recovery of that species in the wild (50 CFR 402.02, emphasis added). Using the above definition of "jeopardy", the project was evaluated in two ways. (1) Would the project appreciably reduce the likelihood of survival of the species? (2) Would the project appreciably reduce the likelihood of recovery of the species? Most of the comments from Deseret appeared to relate to survival and not recovery.

The USFWS is also concerned about gradual, cumulative impacts on the habitat downstream from the project site. Although the impacts from the Moon Lake power plant are much less dramatic and not as obvious as the more sudden changes created by a large dam and reservoir, the end result is similar in relation to the habitat needed for the continued existence of the endemic species.

28.10 Colorado squawfish, bonytail chub, and humpback chub do occur in the Green River below the project site (according to the revised recovery plans for these species). The flows in the Green River are important to the habitat of these species as well as to the habitat of these species in the Colorado River. This comment is more a question of semantics; the Yampa and White River flows are essential for the Green and the Green River flows are essential to the Colorado River in providing habitat for the endemic species.

28.11 Until further studies have been completed, USFWS maintains the opinion that over the past years these endangered species have shown a general decrease in numbers throughout the Colorado River drainage.

28.12 Please refer to Letter Response 28.9.

28.13 Please refer to Letter Response 28.9.

28.14 Omission of this data was an oversight. The information was known and used by the preparers of the Biological Opinion.

28.15 See Oral Testimony Response 17.

28.16 The text has been revised. See Item "a" "Measures Required of the pplicant by Federal Agencies" of Chapter 2 in this Final EIS.

28.17 Golden eagles are not an officially listed threatened or endangered species; however, they do warrant protection under the Eagle Protection Act of 1969.

28.18 Paragraph 3, page 318 of the Draft EIS states that, "All mitigating measures listed below could be modified as deemed necessary by the appropriate Federal official..." If it is demonstrated that a mitigating measure is inappropriate due to unforeseen circumstances, then the measure stipulated in the right-of-way grants could be modified at the discretion of the Federal agency.

28.19 This information will be used in the decision-making process.

28.20 The Forest Service considers the Eccles Canyon summer home area as an area of special concern. The area is located on private and National Forest lands. No other summer home areas were brought to BLM's attention as areas of special concern during the data-gathering process.

The existing summer home areas in Eccles Canyon were not entered into the numerical value procedure rating system as applied to Appendix 12 of the Draft EIS (i.e., the environmental score did not reflect the existence of summer home areas). However, a narrative discussion did include mention of these areas.

The summer home area in Argyle Canyon is mentioned in the narrative for the "Comparative Analysis Summary" (Chapter 2), "Affected Environment" (Chapter 3), and "Environmental Consequences" (Chapter 4) sections of this Final EIS.

28.21 Tower sharing was a USFS management concern identified and considered as significant during the scoping process. Therefore, the concern was discussed and analyzed in the Draft EIS as per 40 CFR 1501.7 (a)(3).

During the development of the Draft EIS, Deseret provided no substantive legal or technical data which could be used to determine if a tower sharing system alternative exhibited a "fatal flaw".

The Uinta National Forest, USFS, states that joint use of Hunter 3 and 4 transmission towers to be built in Spanish Fork Canyon is a viable, acceptable, timely, and technically feasible alternative. Deseret would have the responsibility prior to a Federal decision on this project to provide legal basis as to why joint use of towers in Spanish Fork Canyon is legally unacceptable.

Deseret would also have the responsibility prior to a Federal decision on this project to provide legal and technical data on why tower sharing in Sowers Canyon is infeasible. The Draft EIS states that such a transmission

28.21 (cont.) system alternative is feasible, yet recognizes reliability concerns. Negotiated time frames for Sowers Canyon would not involve joint construction schedules with UP&L, since UP&L's line is in place and the requirement would be for UP&L to place their 138-kV line on Deseret's towers as agreed upon by all concerned parties.

Refer to Letter Response 28.22 for procedure in providing additional data prior to a Federal decision.

28.22 Even though the agencies and Deseret's preferred alternatives are stated in this Final EIS, CEQ regulations for 40 CFR 1506.10(b) state that a Federal decision will not be made on proposed actions until 30 days after a filing notice of the Final EIS is published in the Federal Register. The 30-day period allows for Congressional hearings, public appeals, and applicant communication to appropriate Federal officials on proposed actions, possible decisions, and related criteria from those decisions.

After the 30-day period, a "Record of Decision" will be jointly prepared by BLM and REA and submitted to Congress as per CEQ Regulations 40 CFR 1505.2. This "Record of Decision" will discuss all environmental factors, economic and technical considerations, as well as the agencies' statutory missions.

As is evident from the above discussion, the Final EIS is one tool used in the decision-making process. The BLM and REA, in preparing this document, strove to meet NEPA regulations; and, in this regard, can only be held responsible for how well such regulations are met. Final decisions on the proposed actions will be in the national, regional, and local interest.

Deseret has a key role in providing economic and technical data for the decision document. With the decision in hand, Deseret would have to decide if its goals, objectives, and obligations can be met and act accordingly. If Deseret accepts the decision, liability for construction and operational actions and outcomes would be their responsibility.

28.23 We concur. Statements to this effect are found on page 103, "Joint Agreement Viability and System Reliability" section of the Draft EIS.

28.24 Miles was used as an indication of the amount of each resource along the corridor alternatives. Other applications of quantifying resources did not match the accuracy and applicability of a linear quantification.

The Draft and Final EIS for the Moon Lake power plant project addresses transmission system corridors (1 mile wide). It is not within the scope of the EIS to address final locations of the transmission system rights-of-way within these corridors. The description and analysis of resources are by corridors. Site specific description and analysis of resources for the designated right-of-way would be the responsibility of the authorizing agencies as they develop construction and operation plans.

28.25 Refer to Letter Responses 28.27 and 28.28. These responses also apply to Items (1), (2), (3), (4), and (5) of your comment.

In response to Item (6), the Appendix 12 rating system shows that there would be double the amount of environmental resource impacts by construction of a unit 1 and unit 2 transmission system in totally different corridors. Page 128, paragraphs 2 to 4, of the Draft EIS states that, if unit 2 were to provide power to the Wasatch Front, double circuiting the unit 1 line to Mona and constructing a new 345-kV line from Mona to Ben Lomond would reduce the amount of environmental resource impacts over that associated with Deseret's

28.25 (cont.) preferred unit 2 route. Page R-73, table B footnote shows that this reduction in resource impacts would amount to 32- to 36-percent fewer impacts with the double circuited unit 1 route and single circuit Mona to Ben Lomond extension.

Refer to Letter Response 28.27 for a response to the Section 505 (b) (v) FLPMA reference.

In response to Item (7), the Summary section of the Draft EIS deals with environmental consequences of the alternative and proposed actions. The dollar losses shown for timber were included in the Summary as a measure of an environmental impact.

The discussion of project costs have been separated from environmental consequence discussions and are included in Appendix 20 of the Draft EIS.

In response to Item (8), the response for Letter 28.27 on Section 505 (b)(v) of FLPMA also applies to Deseret's reference to Section 503 of FLPMA.

28.26 The BLM and USFS asked Deseret and Pacific Gas Transmission Corp. if corridor sharing was technically feasible on portions of segments 11, 24, and 25. The statement, as written in the Draft EIS, reflects agreement of the two companies on segment mileposts where it was believed corridor sharing was technically feasible. A statement has been added to this Final EIS mentioning this inter-company agreement. (See the reprinted page 104 of "Minor Text Revisions" section of Chapter 2 in this Final EIS.)

28.27 The statements made on page R-69, Appendix 12 of the Draft EIS were based on the outputs of the numerical value procedure. The procedure evaluated potential environmental impacts of alternative electric transmission corridors on seven land resource categories. The page R-69 statements are objective and pertain strictly to the numerical value procedure and the seven resource categories.

On page 124 of the Draft EIS, the first paragraph of the "Agency-Preferred Alternative" section states that "...The selection of preferred alternatives is based on environmental information in the Draft EIS, as well as other factors such as agency policies, applicant need, engineering and reliability, and views received to date from other agencies and the public." The Appendix 12 evaluation procedure was one analysis tool used to assist the BLM-USFS in the selection process.

The BLM-USFS preferred routes, as stated on pages 126 to 128 of the Draft EIS, are based on all analysis tools available at the time the document was written. Those routes best meeting environmental concerns, agency policies, Federal Acts, applicant needs, etc., were selected. The statements on pages 126 to 128 of the Draft EIS clearly state the bases for the decisions, with each bases discussed in appropriate chapters and sections of the Draft EIS.

Section 505 (b)(v) of FLPMA addresses right-of-way granting processes which follow decisions resulting from the NEPA process. The Draft and Final EIS for the Moon Lake power plant project formulate the basis for decisions under the NEPA process. Actual right-of-way locations within transmission system corridors would be developed during the right-of-way granting process.

28.28 The numerical value procedure developed in Appendix 12 of the Draft EIS addresses only land resource evaluation criteria. Those criteria (listed on pages R-65 and R-66 of Appendix 12) dealing with health and safety, costs, and energy efficiency were not addressed by the numerical rating procedure. Those criteria should not have been included in Appendix 12.

Refer to Letter Response 28.27 for an explanation of how the results of Appendix 12 analysis were used, in conjunction with other evaluation criteria, in selecting the BLM-USFS preferred alternatives.

28.29 The BLM and REA are aware of electrical transmission reliability problems associated with tower sharing and double-circuiting. This awareness is expressed on pages 103, 128 to 129, and in Appendix 6, pages R-32 to 33 of the Draft EIS. Joint agreement viability and system reliability are discussed on these pages.

Comment Letter 29a

WYOMING
EXECUTIVE DEPARTMENT
CHEYENNE

ED HERSCHLER
GOVERNOR

February 27, 1981

Greg Thayn, Team Leader
Bureau of Land Management
University Club Building
136 East South Temple
Salt Lake City, UT 84111

Dear Mr. Thayn:

The draft environmental impact statement for the proposed Moon Lake Power Project in Uintah County, Utah has been circulated for review by our state agencies. Copies of their comments are enclosed for your consideration and use. Our State Engineer's Office raised concerns over the indirect effect of the proposed Green River water withdrawals on Wyoming's ability to fully develop our water allocation under the Upper Colorado River Basin Compact. Potential restriction on our water development capability could occur as a result of the presumed cumulative impact of Upper Basin water withdrawals on endangered fish species in the White and Green Rivers.

29a.1 Several ongoing Wyoming water development initiatives have already encountered substantial delays due to endangered species concerns. Specifically, the Cheyenne Stage II project has encountered at least a two year delay because of endangered species issues on the lower portions of the Yampa River. Unless the Moon Lake Project's Green River System withdrawals are minimized and/or mitigated, it could further aggrevate the difficulties we are encountering in developing our Colorado River Compact allocations. While I realize that this issue may not directly relate to the Moon Lake DEIS, it falls directly within the definition of "cumulative impact" as setforth in 40 CFR 1508.7, and therefore, the effect that the Moon Lake Project will have on the Cheyenne Stage II project should be considered.

Thank you for the opportunity to review and comment on the Moon Lake Project DEIS.

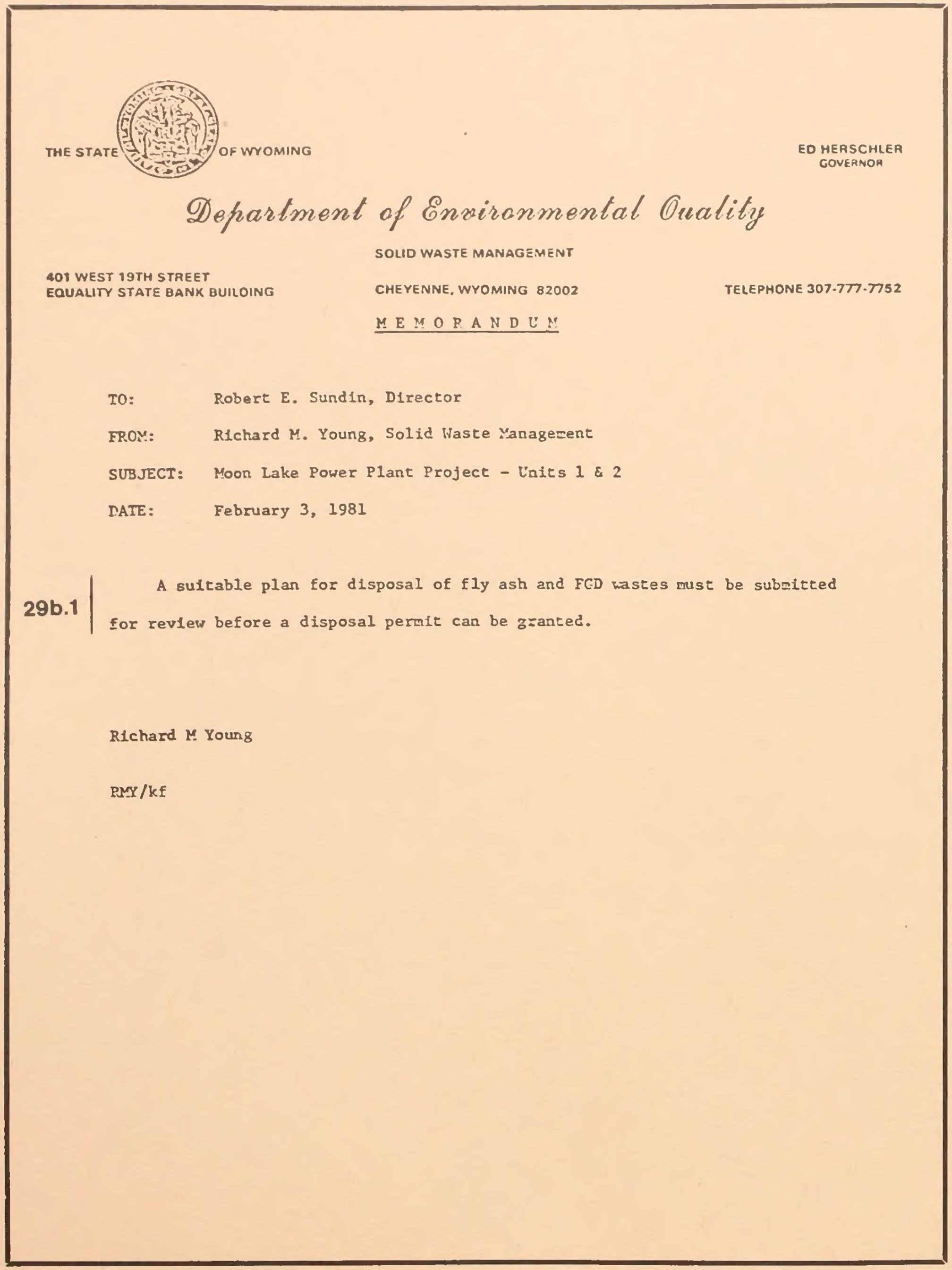
Yours sincerely,

EH:pcd
enclosures

Response Letter 29a

29a.1 See Oral Testimony Response 3.

Comment Letter 29b



THE STATE OF WYOMING

ED HERSCHLER
GOVERNOR

Department of Environmental Quality

SOLID WASTE MANAGEMENT

401 WEST 19TH STREET
EQUALITY STATE BANK BUILDING

CHEYENNE, WYOMING 82002

TELEPHONE 307-777-7752

MEMORANDUM

TO: Robert E. Sundin, Director

FROM: Richard M. Young, Solid Waste Management

SUBJECT: Moon Lake Power Plant Project - Units 1 & 2

DATE: February 3, 1981

29b.1 A suitable plan for disposal of fly ash and FGD wastes must be submitted for review before a disposal permit can be granted.

Richard M Young

RMY/kf

Response Letter 29b

29b.1 The proposed project and alternatives does not include the potential for fly ash and FGD waste disposal in Wyoming.

THE STATE OF WYOMING

ED HERSCHLER
GOVERNOR

State Engineer's Office

BARRETT BUILDING
CHEYENNE, WYOMING 82002

February 18, 1981

MEMORANDUM

TO: Dick Hartman, State PlanningCoordinator

FROM: Louis E. Allen, Water Resources Engineer

SUBJECT State Identifier Number 81-103, Moon Lake Power Plant Project, Units 1 and 2, Draft EIS, BLM.

The subject EIS was reviewed for its effects on Wyoming and Wyoming water. Apparently, there has been some limited contact with the State of Wyoming and with Sweetwater and Uinta Counties during the EIS preparation.

The direct impacts on Wyoming would be recreation related and occur in Sweetwater County as a secondary influence zone (page 302). There could be some housing and shopping spillover to the Rock Springs area as well, particularly during construction. If one of the alternative transmission lines was built through southwestern Wyoming, there would also be short-term impacts from the small construction force and the construction activity. I would not consider any of these to be serious problems.

29c.1 Indirectly, Wyoming could be seriously affected by the water withdrawals for plant operation. Pages R-149 through R-156 in the Appendices contain two memoranda from the U.S. Fish and Wildlife Service (FWS) relative to the biological impacts of the project, and primarily on the presumed effects of water withdrawals from the Green River or the White River in Colorado. The water discussions of the EIS are built around these two memoranda as though the FWS had written those portions of the EIS. The FWS concern centers on the effects of flow depletion on three endangered species, the Colorado squawfish, humpback chub, and bonytail chub. For good measure, they have two humpback chub hybrids and a razorback sucker waiting in the wings that can be called forth to reinforce the three endangered species.

The memoranda and the EIS carry the thinly veiled threat that the FWS will halt all water development in the Green River drainage that would affect the flow of the Green River from the mouth of the Yampa River to the mouths of the Duchesne and White Rivers. Wyoming has already encountered this

Dick Hartman
Page two
February 18, 1981

29c.1 (cont.) Federal interference with water administration in connection with the Cheyenne Project diversions from the Little Snake River which is tributary to the Yampa River. The three endangered species of fish are, through the FWS, allocating the water that Wyoming, Utah, and Colorado are entitled to consume for beneficial use under the Upper Colorado River Basin Compact. This is particularly objectionable in an area that has abundant energy and other resources which require water for conversion to help meet the nation's needs

The Moon Lake Project is objectionable to Wyoming only because its water depletion could, through the Endangered Species Act, preclude the development in Wyoming of Wyoming's water.

Thank you for the opportunity to review this draft EIS. The referral memorandum is being returned as requested.

LEA/ht

cc: George L. Christopulos
State Engineer

Response Letter 29c

29c.1 See Oral Testimony Response 3.

Comment Letter 29d

THE STATE OF WYOMING

Ed Herschler, Governor
Leno Menghini, Superintendent and Chief Engineer

Wyoming State Highway Department
P. O. BOX 1708 CHEYENNE, WYOMING 82001

February 4, 1981

Environmental General
Moon Lake Power Plant
State Identification No. 81-103

Mr. Dick Hartman
State Planning Coordinator
Wyoming State Clearinghouse
2320 Capitol Avenue
Cheyenne, WY 82002

Dear Mr. Hartman:

We have reviewed the subject Draft Environmental Impact Statement and offer the following comments:

29d.1 1. On Page R-15 it is correctly stated that transmission line/highway crossings must be licensed. This requirement is not limited to power lines--it applies to all accesses to and encroachments on highway right of ways.

29d.2 2. Under the open market coal supply alternative, several Wyoming coal mines are possible sources, and daily truck haul over public roads is proposed. Most of the roads in Wyoming could not withstand this amount of heavy truck traffic. Without reconstruction, they would deteriorate to a point where load restrictions would have to be applied.

Very truly yours,

William P. King

William P. King, P.E.
Environmental Services Engineer

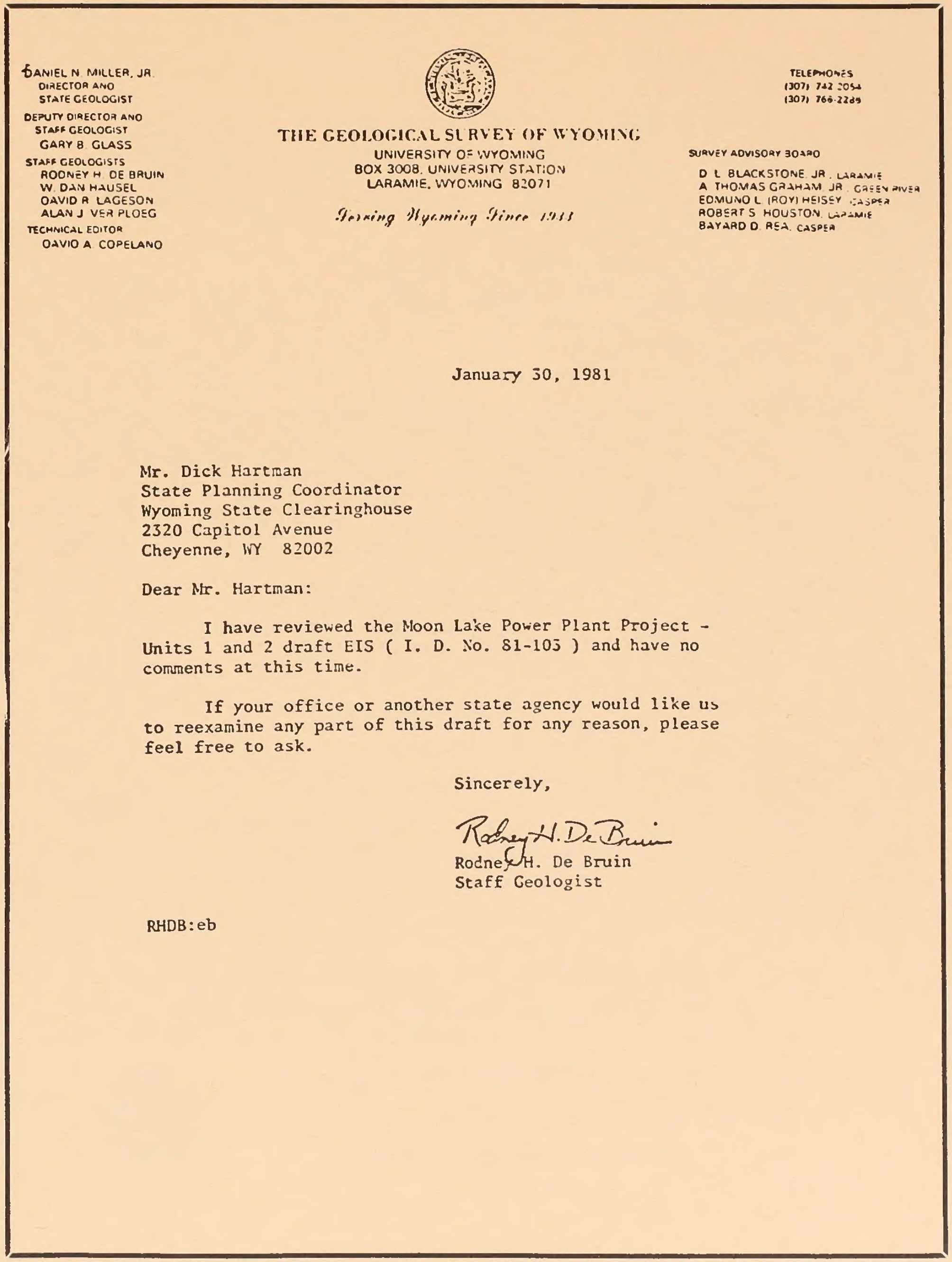
WPK/mg

Response Letter 29d

29d.1 This information will be used in the decision-making process.

29d.2 This information will be used in the decision-making process.

Comment Letter 29e



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January 30, 1981

Mr. Dick Hartman
State Planning Coordinator
Wyoming State Clearinghouse
2320 Capitol Avenue
Cheyenne, WY 82002

Dear Mr. Hartman:

I have reviewed the Moon Lake Power Plant Project - Units 1 and 2 draft EIS (I. D. No. 81-103) and have no comments at this time.

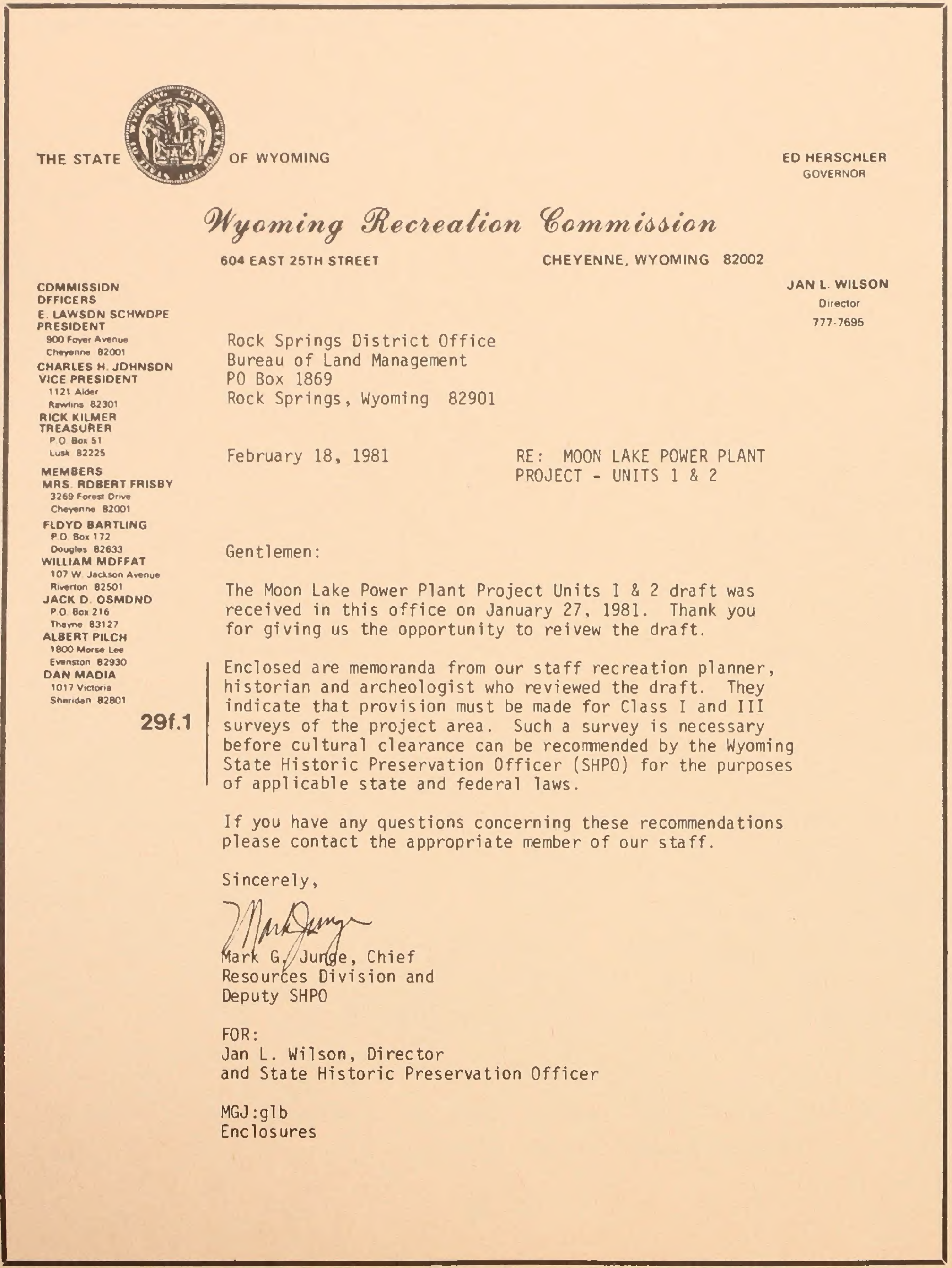
If your office or another state agency would like us to reexamine any part of this draft for any reason, please feel free to ask.

Sincerely,

Rodney H. De Bruin
Rodney H. De Bruin
Staff Geologist

RHDB:eb

Comment Letter 29f



THE STATE OF WYOMING

ED HERSCHLER
GOVERNOR

Wyoming Recreation Commission

604 EAST 25TH STREET CHEYENNE, WYOMING 82002

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Director
777-7695

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Rock Springs District Office
Bureau of Land Management
PO Box 1869
Rock Springs, Wyoming 82901

February 18, 1981

RE: MOON LAKE POWER PLANT
PROJECT - UNITS 1 & 2

Gentlemen:

The Moon Lake Power Plant Project Units 1 & 2 draft was received in this office on January 27, 1981. Thank you for giving us the opportunity to reivew the draft.

29f.1 Enclosed are memoranda from our staff recreation planner, historian and archeologist who reviewed the draft. They indicate that provision must be made for Class I and III surveys of the project area. Such a survey is necessary before cultural clearance can be recommended by the Wyoming State Historic Preservation Officer (SHPO) for the purposes of applicable state and federal laws.

If you have any questions concerning these recommendations please contact the appropriate member of our staff.

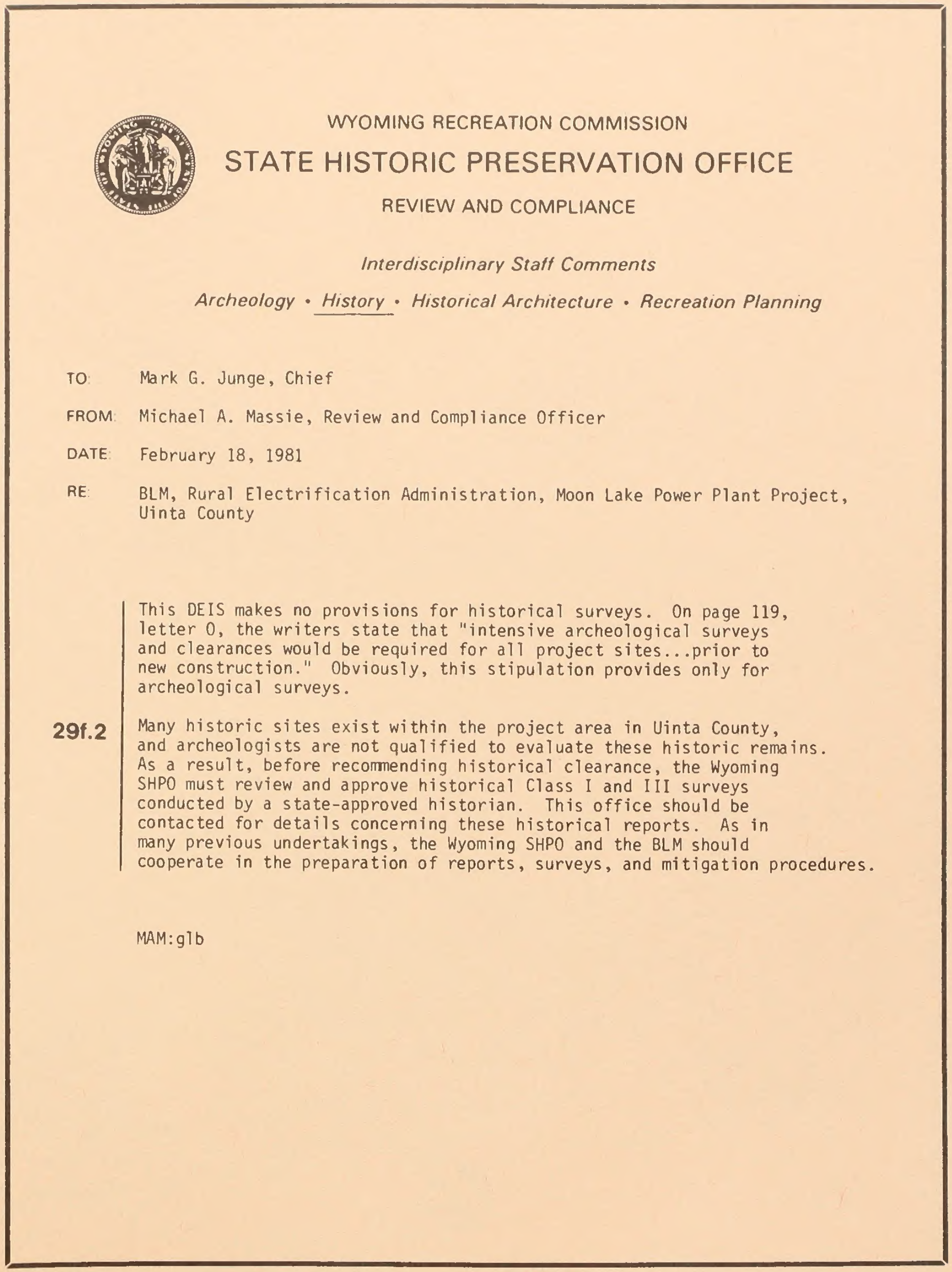
Sincerely,

Mark G. Junge, Chief
Resources Division and
Deputy SHPO

FOR:
Jan L. Wilson, Director
and State Historic Preservation Officer

MGJ:glb
Enclosures

Comment Letter 29f



WYOMING RECREATION COMMISSION

STATE HISTORIC PRESERVATION OFFICE

REVIEW AND COMPLIANCE

Interdisciplinary Staff Comments

Archeology • History • Historical Architecture • Recreation Planning

TO: Mark G. Junge, Chief

FROM: Michael A. Massie, Review and Compliance Officer

DATE: February 18, 1981

RE: BLM, Rural Electrification Administration, Moon Lake Power Plant Project, Uinta County

This DEIS makes no provisions for historical surveys. On page 119, letter O, the writers state that "intensive archeological surveys and clearances would be required for all project sites...prior to new construction." Obviously, this stipulation provides only for archeological surveys.

29f.2 Many historic sites exist within the project area in Uinta County, and archeologists are not qualified to evaluate these historic remains. As a result, before recommending historical clearance, the Wyoming SHPO must review and approve historical Class I and III surveys conducted by a state-approved historian. This office should be contacted for details concerning these historical reports. As in many previous undertakings, the Wyoming SHPO and the BLM should cooperate in the preparation of reports, surveys, and mitigation procedures.

MAM:glb

Comment Letter 29f

WYOMING RECREATION COMMISSION
STATE HISTORIC PRESERVATION OFFICE
REVIEW AND COMPLIANCE

Interdisciplinary Staff Comments

Archeology • History • Historical Architecture • Recreation Planning

TO: Mark Junge, Chief

FROM: Richard Bryant, Archeological Compliance Officer

DATE: February 9, 1981 (4-district 3)

RE: Comments and Summary of Pertinent Data, Moon Lake Power Plant and Transmission Line

29f.3 The only impacts of the project in Wyoming will occur in Uinta and Sweetwater counties in an existing transmission line corridor (UP&L) running NW to SE for a distance of 50 miles across the extreme SW corner of the state. The impacts will be the result of construction of new towers to support a 345 KV transmission line running from Bonanza Unit 2 and/or Rangely Unit 2 power plants located south of Vernal, Utah, to the Ben Lamont Sub Station north of Mountain Green Utah. The proposed line (identified as Segment 35) contains 24 known archeological and historic sites. The Draft EIS does not provide exact site locations so it is not known how many of these are in Wyoming. A Class II Cultural Resource Inventory exists which would provide details on known site locations and NRHP eligibility, but I do not have ready reference to it. In any case, the Wyoming portion of the route is largely unsurveyed and a Class III cultural resource survey would be required prior to construction activities.

29f.4 The proposed transmission line route crosses BLM and USFS lands. The Wyoming SHPO and the BLM have signed an agreement for protection of cultural resources. We should also consider such an agreement with the USDA: Wasatch National Forest.

At this stage of planning, it appears that adequate measures for protection of archeological resources have been considered. I recommend that close contact be maintained between our office and all responsible parties to the project during future planning and construction phases.

Comment Letter 29f

WYOMING RECREATION COMMISSION
STATE HISTORIC PRESERVATION OFFICE
REVIEW AND COMPLIANCE

Interdisciplinary Staff Comments

Archeology • History • Historical Architecture • Recreation Planning

TO: Mark G. Junge, Chief

FROM: Gary Thorson, Recreation Planner

DATE: February 18, 1981

RE: Moon Lake Power Plant Project Draft E.I.S.

The draft EIS for the Moon Lake Power Plant Project Units 1 and 2 does not provide an adequate assessment of the project's impact on recreation in Wyoming.

29f.5 Although sporadic mention is made of recreation in Utah and Colorado, the subject of recreation is not specifically dealt with for Wyoming. Potential impact on recreation could result from two phases of the project. The construction phase of new towers will cover a 50 mile transmission line corridor through Sweetwater and Uinta Counties. The transmission line construction access roads may pose inherent management and enforcement problems. The point is that increased off-raod vehicle (ORV) use, harrassment and increased poaching and hunting of wildlife, and increased fishing pressure may be caused by the construction force along this corridor.

The construction and operation phase for both the Rangely and Bonanza Plant Sites include a sizeable piece of Sweetwater County within the reports designated secondary influence zone. Flaming Gorge National Recreation Area is located within this influence zone.

29f.6 The Flaming Gorge Reservoir and the Green River play an extremely important role for recreation in southwestern Wyoming. Due to cumulative population increases and the lack of additional water-based recreation areas in this vicinity, over-crowding of developed recreational facilities will occur.

Members of the Recreation Planning staff of our agency suggest that an assessment of the project's impact on recreation in Wyoming be made.

GT:glb

Response Letter 29f

29f.1 Such provisions are made in a Cooperative Agreement between the Wyoming State Historic Preservation Officer and the Wyoming Bureau of Land Management. Additionally, the Class III surveys will not be made unless this particular alternative is selected for implementation.

29f.2 Section I of the Cooperative Agreement entered into by the Wyoming State Historic Preservation Officer and Wyoming Bureau of Land Management defines "cultural resources" as "data and sites which have archaeological, historical, architectural, or cultural importance and interest." The Agreement further states, "Investigators will be qualified to evaluate these cultural resources. Qualifications of investigators will be submitted to the State Historic Preservation Officer."

Please note on page 123 of the Draft EIS that "the same or additional mitigating measures could be required by state and local officials."

29f.3 If this alternative were selected as the transmission line route, a Class III inventory would be required prior to construction as stipulated on page 119 of the Draft EIS and in the Cooperative Agreement between the Wyoming State Historic Preservation Officer and Wyoming Bureau of Land Management.

29f.4 The contact described in 36 CFR 800 and in the Cooperative Agreement between the Wyoming SHPO and BLM will be maintained as specified.

29f.5 Improved access created by transmission line construction would increase ORV use in the affected areas. In some areas, this would lead to the types of problems you indicate. However, the measures proposed by the applicant and required by Federal agencies would be effective in preventing such damages by the construction work force.

29f.6 It is recognized that Flaming Gorge NRA is a unique and valuable recreational resource in southwestern Wyoming. Existing uses of the water-based and developed facilities of Flaming Gorge are below capacity. Based on present use growth trends, it may be 10 years before use reaches recommended capacity for the facilities. It is not anticipated that the Moon Lake project-induced population increases would appreciably accelerate the use growth trend.

Comment Letter 30

United States Department of the Interior
NATIONAL PARK SERVICE
ROCKY MOUNTAIN REGIONAL OFFICE
655 Parfet Street
P.O. Box 25287
Denver, Colorado 80225

IN REPLY REFER TO:

L7619 (RMR)PC

MAR 2 1981

Memorandum

To: Moon Lake Power Plant Project Team Leader, Utah State Office, Bureau of Land Management, Salt Lake City, Utah

From: Associate Regional Director, Planning and Resource Preservation, Rocky Mountain Region

Subject: Review of Moon Lake Power Plant Project Draft Environmental Impact Statement

The National Park Service has reviewed the subject document. Our principal concern is the effects that the project might have on the environment for Dinosaur National Monument.

30.1 The Draft Environmental Statement for the Moon Lake Power Plant Project has some apparent discrepancies such as time frame and need when it is compared to the Prevention of Significant Deterioration permit request sent to Region VIII of the Environmental Protection Agency. We are concerned that these two items be brought together for the benefit of the reviewing public.

30.2 The modelling was done with respect to Utah's and national concerns; yet the plant is going to emit pollutants into Colorado more than Utah as the State line is roughly 12 miles east. It is our belief that the State of Colorado review merits more impact on PSD standards than does the State of Utah. Cumulative impacts within the Uintah Basin should be given very concentrated review for air quality related values due to the tremendous energy development impacts proposed for the area.

30.3 We believe there should be additional justification proposed for the need for the project. A discussion of load management techniques and a more exacting treatment of energy conservation is needed to fully evaluate alternatives to constructing the project.

30.4 Need for Power - On page 2 of the statement it is mentioned that: "* * * the line would be built to Ben Lomand substation or to the oil shale

30.4 (cont.) fields depending on power demands." The statement admits that there is no known demand at present for power from the second unit of the plant. It would seem that the environmental consequences of the second unit do not justify its construction with such a weak case or no case presented for the additional power.

30.5 The Draft Statement mentions, but does not discuss, that the Secretary has recommended Class I air quality designation for Dinosaur National Monument. We suggest that the Statement discuss the implications for the project exceeding PSD or visibility requirements should the Class I designation be granted by the States of Colorado and Utah. We also believe that the Draft Statement has not adequately addressed the relationship of the project to other projects regarding PSD requirements of Class II designation. It should note for example that the Rangely Basin is subject to frequent inversions which could further increase air pollution and visibility problems.

30.6 On page 18 where the need for power is discussed and the existing and proposed capacities are listed, the statement does not show that the six member cooperatives are participants in the Intermountain Power Project (See Table 1-1 on page 1-5 of the DES for IPP). Table 1-1 shows Deseret's portion of the project as 5.865% with a power allocation of 175.92 MW. The additional capacity should be mentioned here and should be added to the "Generation" and "Capacity Available" columns in Tables 1-4 on page 20 and 1-5 on page 21 of the Moon Lake Draft Statement. Unit 1 of IPP is scheduled to come on line July 1, 1986.

30.7 Page 130-131, Table 2-13. Under the "irreversible commitment of resources" column some mention should be made of the dangers of acid precipitation to the freshwater lakes of the Rocky Mountains. It is quite possible that the SO_2 from this plant along with the contributions of other existing and proposed energy and synfuels projects could radically change the aquatic ecosystems of these freshwater lakes. Some mention of acid precip and deposition is made on page 247 of the text but it is inconclusive and sketchy.

30.8 Data from Dinosaur National Monument also indicates higher wind speeds than those noted in the Statement. Thus, we believe that the Statement grossly underestimates the potential impact of this project on the air quality and visibility of Dinosaur National Monument.

30.9 On page 253, the Draft Statement says that until releases of Flaming Gorge Reservoir drop to the 400 cubic feet per second (cfs) level, the 30 cfs owned by Deseret would not be released. Using the U. S. Fish and Wildlife Service opinion on page R-153, we believe that under this

30.9 (cont.) operational regime, the flows in the Green River below the collection area of Flaming Gorge Dam would be diminished so that endangered fishes may be further jeopardized. This level of use and the release schedule would almost certainly not mitigate impacts on endangered species. We recommend that the Statement clarify the actual arrangement proposed for inflow and storage mitigation techniques, particularly because confusion on delivery of makeup water may require a revision of the Biological Opinion, or a revision of the conclusion on page 5 that no significant impact to endangered species would take place.

30.10 The Draft Statement says that the applicant's preferred alternative for a water source is from the Green River. The White River Dam Draft Environmental Statement, also prepared by the Bureau of Land Management, states that Deseret's preferred alternative for a water source is the proposed White River Dam. This disparity must be rectified. If the Moon Lake Draft Environmental Statement is correct, the "need" for the White River Dam is further questionable.

30.11 We believe there needs to be further clarification of the methods used to arrive at estimates for sedimentation (page 83). We also recommend that the 1963 low flow of the Green River should not be considered in worst-case water yield studies since it was a result of filling Flaming Gorge Dam. The increased costs of desalinization at or below Imperial Dam should be included in the project's cost, and the proposed Juniper-Cross Mountain Project on the Yampa River should be included in the discussion of other withdrawals.

30.12 On pages 253-255, the availability of water in the Green River has not considered the net cumulative effect if the Juniper-Cross Mountain Project were constructed on the Yampa River, or the Town of Rangely Municipal Reservoir upon the White River.

30.13 It would be appropriate to expand the discussion of the presence of cultural/archeological sites to examine the type, magnitude and importance of these potentially affected sites.

30.14 In pages 305-306, the Draft Statement should mention that Dinosaur National Monument is one of the areas whose recreational facilities would be further impacted by an expansion of the local population. Some of our facilities are already used at or near capacity, and Dinosaur National Monument is used for more than paleontology research, but for recreation as well.

30.15 In light of the concerns about wind information data discussed above, perhaps the document should reexamine the statement on page 10 that lands under wilderness review would not be affected.

30.16 We understand that the Utah State Bureau of Land Management Office is proposing to do a regional environmental assessment of all energy developments

30.16 (cont.) which would include the Uintah Basin. This is an excellent idea which is driven home when one reads the Moon Lake DEIS. Deseret says they will need the second 400 MW unit to supply the synfuels projects in the area. However, some of the oil shale projects will generate surplus power on their own which they propose to sell to others or back to Deseret. There is the possibility of co-generation for the second unit in which by-products of an oil shale project might be used as fuel in lieu of coal. The coal supply at the Deserado Mine will not last for the life of the project so another alternate fuel supply will be needed.

30.17 Moreover, we understand that the Western Fuels Corporation has not yet been able to purchase the Deserado Mine, so that the coal supply may not be assured.

30.18 The identification of cultural resources in the secondary influence zone (Fig. 3-5 and p. 205) should recognize the existence of the route of the proposed Dominguez-Escalante National Historic Trail (map attached).

30.19 Page 309 suggests that one way of mitigating effects of transmission lines and towers would be to change the category of lands through which these corridors pass. We suggest that another more direct way is to alter the transmission facilities such as location to avoid high profiles, painting towers earth colors, use of non-reflective materials on transmission lines, use of materials to reduce transmission noise, and similar measures. This would be especially important on the western boundary of Wyoming where Figures 2-32 and 2-34 indicate a transmission line would cross the Mormon Pioneer National Historic Trail.

Enclosed is a copy of the memorandum of February 19 from the Superintendent of Dinosaur National Monument which discusses all of the above concerns in much greater depth and detail. We urge that the Superintendent's comments be carefully read and his recommendations incorporated into the final Environmental Impact Statement for the Moon Lake Power Plant Project.

Richard A. Strait

Richard A. Strait

Enclosures 2

United States Department of th
NATIONAL PARK SERVICE
Dinosaur National Monument
P.O. Box 210
Dinosaur, Colorado 81610

IN REPLY REFER TO:
L7423
Moon Lake Project

February 19, 1981

Memorandum

To: Associate Regional Director, Planning and Resource Preservation
Rocky Mountain Regional Office

From: Superintendent, Dinosaur National Monument

Subject: Comments on Moon Lake Power Plant Project DES
(ER 81/2)

Although our review of this DES is not intensive there are a few areas of critical concern to Dinosaur National Monument. Our comments are grouped into categories such as need for the project, alternatives, air quality, scenic vistas, acid precipitation, water, cultural resources, recreation and wilderness. Those associated with air quality and water are particularly important to us.

Need For The Project/Alternatives

30.20 The statement acknowleges that there is no known demand at present for power from the second unit. This is reinforced by the apparent indecision on the construction timetable for the second unit. We believe the environmental impacts associated with the second unit warrant the suspension of any further consideration of this unit unless or until a strong justification is presented.

30.21 The body of the DES only considers two alternatives: to build this project or not to build. While Appendix 7 does note other generation alternatives, they are not discussed in enough detail to provide the basis for a sound judgement. We suggest that the possible alternatives be examined and discussed far more throughly. Almost no discussion of load management techniques (peak shaving devices, end-use thermal storage units, time-of-use rates, etc.) is presented. This alternative, together with conservation, should be intensively and throughly examined, particularly since the bulk of the power produced would apparently go to commercial and industrial users - users most susceptiable to load management and conservation techniques.

30.22 We are particularly appalled by the treatment of energy conservation as an alternative to project construction. We do agree, however, that conservation cannot be imposed by the Departments of Agriculture and Interior, except on themselves. Dinosaur National Monument, for instance, has reduced its annual kilowatt-hour consumption from about 150,000 kwh in 1975 to about 79,000 kwh in 1980. Perhaps not all of Deseret's customers can effect a reduction of this magnitude. We suspect that most commercial, industrial and residential customers can, however, make far greater reductions than they might initially

Year of the Visitor

30.22 (cont.) expect. We do not think that simply advancing conservation "in the spirit of 1502.14 (c) and the Council on Environmental Quality regulations" is a sufficient treatment of the alternative. In fact, as the DES points out, it was not analyzed at all. The Deseret Generation and Transmission Cooperative wants to make use of national resources entrusted to USDA and USDI for management. They would destroy some resources while degrading others to produce power for relatively localized consumers. While the USDA and USDI cannot impose conservation requirements on utility operations, conservation measures may or may not be a real alternative which the entire nation - which has a stake in the public lands - may wish to consider. The non-analysis leaves no basis by which the alternative can be adequately considered. We request that this alternative be treated fully, since it is or may be a reasonable alternative to the project whose consideration is required by NEPA.

30.23 While it is possible that Colorado and Utah will experience load growth rates higher than the rest of the nation, due to population growth and energy development, many other utilities have found that load growth rates have decreased significantly. In the United States as a whole, load growth rates have dropped from seven percent per annum to less than three percent per annum over the last few years. Thus we feel that it is extremely important that an independent projection be made of the load growth rate for the area which would be served by the project. If the projection of demand and load growth rates are significantly lower due to (1) conservation and load management techniques, (2) decreased energy development as a result of decreased federal loan guarentees or grants, and (3) an independent projection of the load growth rate, Deseret may find it economically desireable to construct only one unit, one smaller unit, or no units at all.

30.24 Relative to the transmission lines, we are unable to assess the REA transmission line alternative for siting the Unit 2 345 kv transmission line because we do not know what "catastrophic" means with regard to a power outage. From a rough cost benefit point of view, it would appear that the "several hundred thousand dollars" that an outage might cost could be shared by about 55,000 users (Table 1-6). These consumers may be willing to risk the extra few dollars apiece to maintain the environmental amenities protected by the BLM-USFS tower sharing proposal.

Air Quality

The DES states that the Moon Lake Project would meet all Class II and Colorado Category I standards at Dinosaur National Monument. The DES also mentions, but does not discuss, that the National Park Service has proposed Class I designation for the monument.

30.25 Within the framework of the assumptions made in the DES, we are concerned with the potential impact of the project on the air quality of Dinosaur, particularly if this area is designated Class I. We assume from the tenor of the DES that the project would exceed the PSD or visibility requirements of a Class I designation. This possibility and its implications for the project need to be fully discussed. Furthermore, the DES has not adequately addressed the relationship of this project to other projects regarding the PSD requirements of Class II designation. If emissions from this project approach the limits imposed by Class II designation (and it appears that they would), will other projects be precluded? Will this project use nearly all of the allowable increment? The cumulative effects of SO_2 emissions, NO_x emissions and particulates from this

30.25 (cont.) and other proposed projects needs to be addressed in much greater detail.

30.26 The discussion on inversions should also note that the Rangely Basin is subject to frequent inversions which could further exacerbate air pollution and visibility problems.

30.27 The DES apparently predicates its assumptions concerning the impacts on air quality at Dinosaur on meteorological data collected at the Ua-Ub oil shale tracts five miles south of Bonanza. It states (p. 240) "Southwest winds, which would be necessary to transport the plume from a Bonanza plant to the Dinosaur Headquarters occurred about 8 percent of the time." The DES acknowledges that no meteorological data was collected at the proposed plant site.

The observed wind direction at Dinosaur for June through August, 1980 is:

Wind Direction	No. of Days		Percentage of Days	
	Dinosaur HQ	Quarry	Dinosaur HQ	Quarry
N	0	3	0	3.3
NE	0	1	0	1.1
E	1	0	1.1	0
SE	6	5	6.5	5.4
S	9	20	9.8	21.7
SW	47	49	51.1	53.3
W	19	12	20.7	30.0
NW	10	1	10.9	1.1
O (no wind)	0	1	0	1.1
TOTAL	92	92	100.1	100.0

30.28 We believe that these wind directions are maintained at roughly these percentages throughout the year and from year to year. Our data also indicates higher wind speeds than those noted in the DES. We believe, based on our data, that the DES grossly underestimates the potential impact of this project on the air quality of Dinosaur National Monument. The consequences would be much greater if Dinosaur is redesignated Class I. It seems further probable, given the existing terrain, that pollution could be delivered to the monument from more than one sector. On these bases alone, we strongly urge that any further consideration of the Moon Lake Project be deferred until air movement patterns and the implications for pollution transport can be adequately delineated.

30.29 At no point in the DES does there seem to be a discussion of the effects on human health of emitting 5.1 tons per day of SO_2, 2.9 tons of particulates and 58.4 tons of NO_x. When the Four Corners plant in northern New Mexico began operating, admissions to area hospitals for respiratory problems apparently increased dramatically. Since human beings, like other organisms, exhibit a spectrum of tolerance for environmental contaminants of this type, the discussion of health problems should include a worst case analysis. Such an analysis should stress the actual removal efficiency of the proposed system in dealing with sub-micron particules. These have apparently been implicated in cases of lung disease rather more than the large particules which most systems effectively remove.

Visibility/Scenic Vistas

30.30 The DES suggests that a Moon Lake project plume would have minimal effects on visibility and scenic vistas from Dinosaur. These discussions should be entirely rewritten in light of the disparity in wind data noted above and the proposed redesignation of Dinosaur to Class 1 air quality. We suspect that the plume may significantly impair visibility from scenic vistas.

The potential intrusion of the refuse disposal area and electric railroad, associated with the Deserado Mine on scenic vistas from Dinosaur should be discussed in greater detail. We expect the location and/or operation of the refuse disposal areas and electrical railroad would have to be modified if Class I designation is granted to Dinosaur.

Acid Precipitation

30.31 The DES discussion of acid rain resulting from operation of the Moon Lake plant is inadequate. Problems have already been identified in lakes and streams in the Rocky Mountains of Colorado. It seems likely that acids from the plant would precipitate out of the emission cloud to and beyond the headwaters of the Yampa, White and Colorado Rivers. It is possible that this and other projects, cumulatively, could radically alter the aquatic ecosystems of some lakes and streams. We suggest that the FES discuss, using worst case estimates, the effects of acid precipation attributable to this plant on (1) the pH of soils, lakes and streams in the plant's airshed, and (2) the effects on aquatic and terrestrial organisms. The discussion should emphasize the effects of the major flush of acids which occurs with the first flow of snowpack meltwater.

Water

30.32 Our first general comment on water supply and rights is contingent upon several sections of the DES, but first inspired by page 5, "However, if water were purchased from Flaming Gorge, thus replacing water withdrawn from the Green River for the Moon Lake Project, the endangered fishes would not be affected." The USFWS opinion (see appendix 23, section 1, p. R-153) stresses that make-up water is to be delivered on a daily basis in order to avoid jeopardy to the endangered fishes. It seems logical that if make-up water is delivered on this basis, flows from the dam will be increased by about 30 cfs at all times, so that flows below the collection areas will be maintained at present levels.

However, on p. 253 the DES stated that "Until releases drop to the 400 cfs level, the 30 cfs owned by Deseret would not be released...." Clearly, under this operational regime, the flows below the collection area would be diminished, so the fish may be jeopardized. Put more simply, under the USFWS schedule, present releases shifting between 800 and 3,000 cfs would be altered to a range of 830-3,030 cfs down to the collection area. With the subtraction of 30 cfs, the remaining flows through an area critical to the survival of the species would not be lessened from their present levels. Under the WPRS regime stated on page 253, the 30 cfs would be released at and only at the 400 cfs level; flows from the dam to the collection area would be 430 cfs, and 400 below it. This level, and this release schedule, would almost certainly not mitigate impacts on the endangered species.

30.32 (cont.) Second, we tend to question the hydrologic and legal feasibility of either version of the mitigation technique. Long term outflow from any reservoir is simply the inflow minus evaporation and storage. If Deseret is purchasing 30 cfs out of storage, storage will eventually be diminished until there is none left to deliver. If Deseret is purchasing inflow, which would therefore allow for the delivery of a steady 30 cfs, WPRS is probably not involved, and more complicated questions exist concerning whether inflow from a Wyoming source can be sold outside the borders of Wyoming. At present there is undeveloped inflow to the reservoir so the question may be moot, but at the time when undeveloped inflow ceases and compact requirements govern, this question may be of more importance.

We therefore would suggest that the statement clarify the actual arrangement involved, particularly as the confusion on delivery of makeup water may require a revision of the Biological Opinion or of the conclusion on page 5 that no significant impact will take place.

30.33 The DES states that the applicant's preferred alternative for a water source is from the Green River. The White River Dam DES, also prepared by BLM, states that Deseret's preferred alternative for a water source is the proposed White River Dam. This disparity must be rectified. If the Moon Lake DES is correct, the "need" for the White River Dam is further obviated.

30.34 It appears from the figures cited on sedimentation (p. 83) that the estimates used were that the White River's annual sediment load approximates 1/10 of 1% of its annual flow. This seems extraodinarily low for an arid-country river. Perhaps this apparent discrepancy could be cleared up by inclusion of some sediment load figures and some more discussion of Hansen's method. It is worth noting that if the load is a mere 1% of annual volume, the Taylor Draw Reservoir's useful life is not quite 2 years, rather than 20 (estimated using the 94% trapping efficiency in the White River Dam DES).

30.35 The spring high flows of the Green River near Jensen (p. 166) are due mostly to the contributions of the undammed Yampa River. The 1963 low flow is the result of filling Flaming Gorge Dam and should not be considered in worst-case water yield studies.

30.36 The increased cost of desalinization at or below Imperial Dam should be internalized in the project's cost.

30.37 The proposed Juniper-Cross Mountain Project on the Yampa River should be included in the discussion of other withdrawls (p. 253).

Cultural Resources

30.38 The DES simply mentions the presence of cultural/archeological sites which may be destroyed by the project. It would be appropriate to expand the discussion to examine the type, magnitude and importance of the potentially affected sites.

RECREATION

30.39 The DES (p. 305-306) does not mention that Dinosaur National Monument as one of

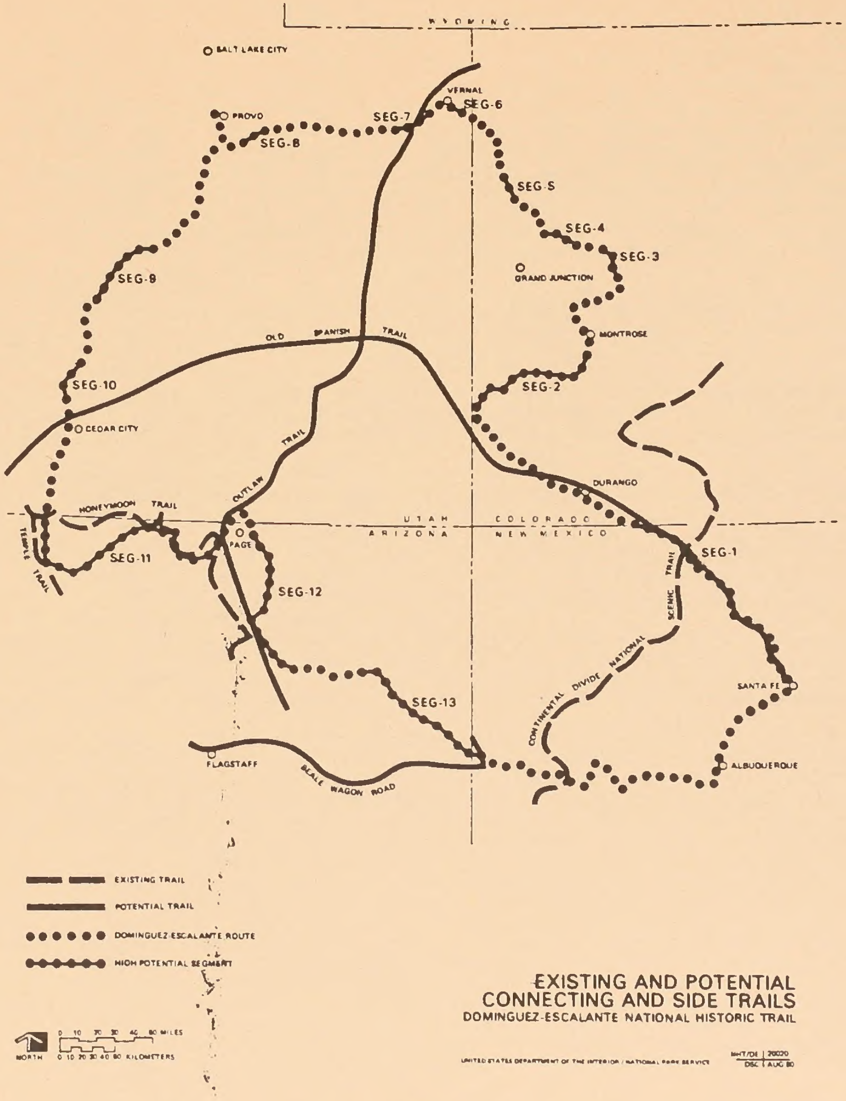
30.39 (cont.) the areas whose recreational facilities would be futher impacted by an expansion of the local population. Some facilities are already used at or near capacity.

Wilderness

30.40 The DES states (p. 10) that the project would "not affect or impact any lands designated as wilderness or currently under wilderness review." There are several Proposed Wildernesses and/or Wilderness Study Areas northeast of the proposed project. In light of the wind direction data we presented earlier, we feel this statement should be re-examined and perhaps modified.

Joe L. Kennedy

Joe L. Kennedy


WYOMING
SALT LAKE CITY
PROVO
VERNAL
SEG-6
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GRAND JUNCTION
MONTROSE
SEG-9
OLD SPANISH TRAIL
SEG-10
CEDAR CITY
SEG-2
DURANGO
OUTLAW TRAIL
HONEYMOON TRAIL
TEMPLE TRAIL
PAGE
UTAH
ARIZONA
COLORADO
NEW MEXICO
SEG-1
SEG-11
SEG-12
SCENIC TRAIL
CONTINENTAL DIVIDE NATIONAL
SANTA FE
SEG-13
FLAGSTAFF
BEALE WAGON ROAD
ALBUQUERQUE
EXISTING TRAIL
POTENTIAL TRAIL
DOMINGUEZ-ESCALANTE ROUTE
HIGH POTENTIAL SEGMENT
NORTH
0 10 20 30 40 50 MILES
0 10 20 30 40 50 KILOMETERS

EXISTING AND POTENTIAL
CONNECTING AND SIDE TRAILS
DOMINGUEZ-ESCALANTE NATIONAL HISTORIC TRAIL

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE
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30.1 The permit request to EPA originally identified spring 1996 as the date to begin construction on unit 2. Deseret has revised that date to 1983, with commercial operation to begin 1988. The EIS has been changed to reflect this information. See the reprinted page 33 of "Minor Text Revisions" section of Chapter 2 in this Final EIS.

30.2 See Letter Response 22b.3.

30.3 See Letter Response 22e.3.

30.4 Because it takes 4 to 5 years to construct an electric generating unit and at least 2 years to design the installation, secure necessary permits, arrange financing and arrange for a fuel supply, the need for nearly every new generating facility is based on a forecast of load levels which would exist 6 to 10 years in the future. Deseret's new 1980 PRS (electric load forecast) is completed and was approved by REA on January 6, 1981.

This load forecast indicates (see table 1-5) that unless Moon Lake unit 2 is constructed, Deseret will have demands for power exceeding its capacity of 6.6 MW in 1987, 96.2 MW in 1988, and 239.2 MW in 1989. Deseret, therefore, plans to construct the unit for 1988 operation. These demands do not exist today, so from that standpoint they are not "known".

30.5 Air quality modeling shows that the PSD increments would be met if Dinosaur were reclassified to a Federal PSD Class I area. Because impairment to visibility at Dinosaur is predicted, if Dinosaur were designated Class I prior to the issuance of a PSD permit, then the implications could be significant. However, a PSD permit has already been issued for the Bonanza site; therefore, the project would not be affected by redesignation. Should the plant be built at Rangely, then redesignation would have to occur before the issuance of a PSD permit in order to have any regulation implication to visibility impairment.

30.6 Deseret's share of IPP power has been listed in table 1-5 of the Final EIS. By itself, the table presents an incomplete picture of the relationship between Deseret and IPP. Therefore, a new paragraph discussing this relationship has been added to the "Purpose and Need" section under the heading "IPP Project".

30.7 See Letter Response 14.12.

30.8 Pollutant concentrations and impacts to visibility are inversely proportional to wind speeds. Thus, the lower wind speeds used in the screening models have overestimated rather than underestimated potential impacts on the air quality and visibility of Dinosaur National Monument.

30.9 See Oral Testimony Response 3.

30.10 The Green River is Deseret's preferred water source for the Moon Lake project.

30.11 See Letter Response 26.8 for sedimentation discussion. We also concur with the concern regarding the 1963 water yield studies and text revisions have been made. (See Chapter 4, "Surface Water" section of "Environmental Impacts of Power Plant Site and Raw Material Supply System Alternatives" in this Final EIS.) A more accurate assessment of the yield from the Flaming Gorge Reservoir is contained in the Draft EIS for the Green and Yampa Rivers (USDI, NPS, 1979). Storage began on November 1, 1962 in the Flaming Gorge Reservoir and has controlled the flows downstream since that date. See Oral Testimony Response 9 for flow data.

There appear to be many cost-related impacts resulting from changes in salinity of waters of the Colorado River. The problem is that the well being of some users of the river conflicts with the well being of other users. The estimates of increased salinity are intended to be used only as one measure in evaluating the effects (impacts) of the project. Costs or damage is estimated to be about $344,000 based on an 0.8-mg/ℓ increase at Imperial Dam, California ($430,000/mg/ℓ increase). These costs reflect detrimental impacts to water users such as decreased productivity and/or increased production costs for both agriculture and industrial water users. In household uses, the detriments include reduced life of water-related equipment and lower palatability of drinking water.

The proposed withdrawal is within Utah's authority under the terms of the Colorado River Compact. Therefore, the cost caused by increased salinity is not to be paid by Deseret but represents an unmitigated adverse impact.

Regarding the Juniper-Cross Mountain project, see Letter Response 30.37. The revised "Water Resources, Green River", in Chapter 4 of this Final EIS includes the Juniper-Cross Mountain project.

30.12 The 63,500 acre-feet per year that would be depleted by the Juniper-Cross Mountain Reservoirs is included in the total depletion estimate; however, the project was omitted from the list of water projects. Appropriate text revision have been made. (See "Green River" section of "Water Resources" in Chapter 4 of this Final EIS.)

The Town of Rangely Municipal Reservoir is the Taylor Draw Reservoir discussed in the Draft EIS.

30.13 An attempt has been made to keep the discussion of cultural resources commensurate with the level of impact expected to the resource. The information you mention is on file but is not presented because it would not add to the decision-making process.

30.14 Page 305 of the Draft EIS refers to table 3-25 for identification of areas where recreation sites would experience additional use. Table 3-25 identifies Dinosaur National Monument as one of the potentially impacted areas.

30.15 See Letter Response 30.40. The text has been revised. See "Regulatory Compliance With Select Laws and Executive Orders" section of the Summary in this Final EIS.

30.16 Thank you for your comment. The BLM intends to prepare an EIS on Synthetic Fuel project development in the Uinta Basin including oil shale and tar sands. No comprehensive project descriptions are available since the projects are in various planning and engineering stages. There is presently insufficient data to compile an accurate estimate of generation potentials and needs. The feasibility of using oil shale by-production for fuel at the power plant is discussed on pages R-37 and R-38 of Appendix 7 in the Draft EIS.

30.17 Western Fuels has applied to the Colorado Mined Land Reclamation Division and the Office of Surface Mining for permits to mine the leases which they presently hold. Western Fuels' Deserado Mine Plan has been submitted to the Office of Surface Mining stating that Western Fuels holds surface rights to all areas necessary for the mining operation.

30.18 The Dominguez-Escalante Trail was not discussed because no impact to the trail was identified. No visible portions of the trail are extant; however, the BLM has marked the route of this expedition and developed permanent wayside facilities at various locations along the route. One of these facilities, Musket Shot Springs, is located in the secondary influence zone (as defined on pages 201 and 202 of the Draft EIS). The trail is now identified in the text. (See "Cultural Resources" section of "Secondary Influence Zone" of Chapter 3 in this Final EIS.)

30.19 The statement made on page 309 of the Draft EIS means that, as a result of constructing new transmission lines in areas with low or medium existing contrast, the contrast rating of the area might have to be changed to medium or high, respectively. This does not constitute mitigation; rather it would reflect the degradation of the visual environment. Mitigation would include actions such as you propose. (Also, see Chapter 2 of the Draft EIS, "Standard Measures"; and Chapter 4, "Specific Mitigating Measures", of this Final EIS.)

30.20 It is the judgment of REA and BLM that the environmental impacts of a two unit project have been adequately discussed in the Draft EIS. Also refer to Letter Response 14.1.

30.21 Also see Letter Response 22c.2.

30.22 Thank you for your comment. This information will be used in the decision-making process. See Letter Response 22c.2 and Appendix 9 in the Draft EIS.

30.23 The Chapter 1, "Purpose and Need" section of this Final EIS has been revised to reflect data from a new Power Requirements Study.

30.24 REA is adverse to the tower-sharing concept of both major high voltage transmission lines from the Moon Lake power plant because a natural or man-caused disaster could disrupt both lines for an unspecified amount of time. Such a disruption would result in the forced shut down of one and possibly both units at the site. The result could be a blackout more severe and of longer duration than the January 8, 1981, blackout to the UP&L system. Those customers whose commercial operations or livelihood depend upon electricity to maintain strict temperature controls for heating or cooling would face serious jeopardy and conversely may wish to be protected from outages. Essential public services such as controls over all phases of public transportation (air and road), hospitals, and schools face the same jeopardy. In this instance the risks to reliable operation outweight the environmental impacts associated with corridor sharing by the unit 1 and unit 2 345-kV transmission lines. Also refer to Letter Response 15.4.

The Draft EIS for the Moon Lake project evaluated the impacts from a two-unit power plant even though the timing for the second unit was uncertain. The placement of the second 345-kV line will be dependent upon the results of future load flow studies. Since the loads that would require additional high voltage transmission are still not firm at this time, REA declines to indicate a preference for the second 345-kV line route.

30.25 See Letter Response 22b.3.

30.26 See Letter Response 22b.3.

30.27
30.28 The data collected at the Ua and Ub tracts was used only to discuss the frequency of visibility impacts. Pilot balloon data measured at plume height from October 1976 to January 1978 was used; however, this was during a drought period and may not be indicative of long-term average conditions. The "Air Quality" sections of Chapters 3 and 4 in this Final EIS have been revised to indicate that the data was collected during anomolous meteorological conditions.

Ua and Ub data was not used for comparison to NAAQS, PSD, or Colorado Category I standards because representative hourly data was not available. Worst-case conditions assuming direct plume impact on Dinosaur National Monument was assumed. It is BLM's understanding that your data was collected at 9 a.m. and 2 p.m. mainly during summer months. Due to solar heating, (thermals) winds would be predominantly upslope which is from the southwest, explaining the high frequency of southwest winds. However, during nighttime and other seasons, the upslope flow from the southwest would not occur to this extent. Higher wind speeds would decrease rather than increase impacts. In addition, your data was collected near the ground and would not be expected to be representative of plume-level conditions. In commenting on EPA's proposed issuance of a PSD permit for the Bonanza site, the Rocky Mountain Regional Office of the National Park Service stated that the plant and related facilities "will not cause an adverse impact on any areas administered by the National Park Service" (NPS, 1981).

30.29 The National Ambient Air Quality Standards (NAAQS) were established to protect human health and the public welfare. Because concentrations of pollutants would be within the NAAQS, any effects on human health should be minimal.

30.30 The Draft EIS does not suggest that the plume would have minimal effects on visibility at Dinosaur. The "Visibility" section of "Air Quality" in this Final EIS mentions that a highly visible yellow-brown plume would be observed from the visitor center. The analysis shows that the plume would significantly impair visibility from Dinosaur, especially should the plant be located at the Bonanza site. However, Dinosaur is presently a Class II area with no visibility protection required. The EPA, recognizing that Dinosaur is presently a Class II area, considers the visibility requirements of the PSD regulations to have been met. Visual intrusions caused by facilities are not regulated by the visibility requirements of Class I areas. Mitigation would be necessary only if pollution from these facilities adversely impacts integral vistas. This issue would be addressed if a PSD permit is issued after, if ever, Dinosaur becomes a Class I area.

30.31 Modeling techniques are not available to accurately assess the impact, if any, this plant would have on pH levels and effects on aquatic and terrestrial organisms. The BLM will monitor atmospheric deposition (including acid rain) in the Uinta Basin area to monitor trends during the anticipated increased energy development in the region. The monitoring station will be part of a regional network to establish trends in atmospheric deposition. Appendix 21, page R-143 of the Draft EIS addresses increases in acidity during snowmelt.

Response Letter 30

30.32 See Oral Testimony Response 3.

30.33 See Letter Response 30.10.

30.34 See Letter Response 26.8 for sedimentation discussion.

30.35 The text has been revised in "Water Resources" section of Chapter 3 to include the information provided in the comment. Also, see Letter Response 30.11.

30.36 The proposed withdrawal is within Utah's authority under the terms of the Colorado River Compact. Therefore, the cost caused by increased salinity is not to be paid by Deseret but represents an unmitigated adverse impact.

30.37 The depletion (63,500 acre-feet) due to the Juniper-Cross Mountain project is included in the total depletions. However, the project was omitted from the list of water depleting projects. The text has been revised to include the Juniper-Cross Mountain project. (See the revised "Water Resouces" section on Green River in Chapter 4 of this Final EIS.)

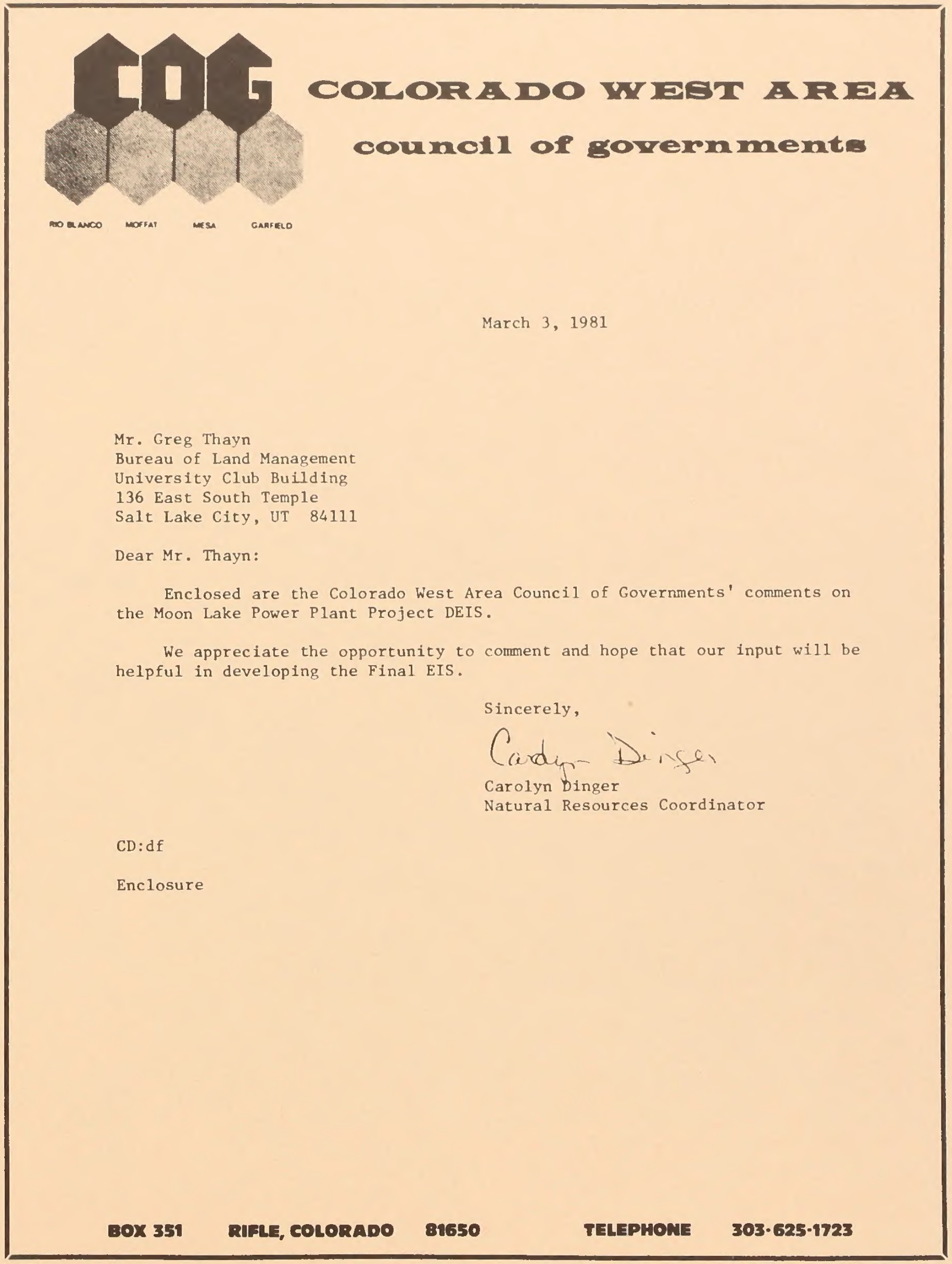
30.38 See Letter Response 30.13.

30.39 This information is included in the "Recreation" section of "Secondary Influence Zone" in Chapter 4 of this Final EIS.

30.40 It is recognized that, under adverse meteorological conditions, the highly visible yellow-brown plume visible from Dinosaur National Monument would also be visible from wilderness study areas (WSAs) in the vicinity of Dinosaur. However, present air quality Class II standards would be met and the effects on visibility would not be so imposing as to outweigh wilderness values in those areas. Also, none of the project alternatives would physically impose on WSAs.

The text has been revised to reflect this. See "Regulatory Compliance With Select Laws and Executive Orders" section in the Summary of this Final EIS.

Comment Letter 31



COG

COLORADO WEST AREA

council of governments

RIO BLANCO MOFFAT MESA GARFIELD

March 3, 1981

Mr. Greg Thayn
Bureau of Land Management
University Club Building
136 East South Temple
Salt Lake City, UT 84111

Dear Mr. Thayn:

Enclosed are the Colorado West Area Council of Governments' comments on the Moon Lake Power Plant Project DEIS.

We appreciate the opportunity to comment and hope that our input will be helpful in developing the Final EIS.

Sincerely,

Carolyn Dinger

Carolyn Dinger
Natural Resources Coordinator

CD:df

Enclosure

BOX 351 RIFLE, COLORADO 81650 TELEPHONE 303-625-1723

COLORADO WEST AREA COUNCIL OF GOVERNMENTS COMMENTS
ON THE DRAFT EIS
FOR THE MOON LAKE POWER PLANT PROJECT

31.1 1. Table 3-16 should reflect the percentage of owner/rental units as well as the totals. For instance in 1976, 64% of all units were owner occupied, 22% were renter occupied, and 21% were mobile homes, leading to the conclusion that the housing market in Uintah County is tipped heavily to owner-occupied units and thus not able to readily accommodate an influx of temporary workers who will demand a higher percentage and number of rentals than presently exists.

31.2 2. On page 193, "Moderately priced, single family conventional housing" should be defined as to cost in order to make comparative references for both Rangely and Vernal.

31.3 3. Table 3-17 should also have percentages of owner/rental units included. For instance, in 1976 58% of all units in Rio Blanco County were owner units, 28% were rental units, and 13% were mobile homes. Comparing this with Uintah County, it is apparent that the housing market in Rio Blanco County is geared to more rental units and therefore better able to accommodate a temporary workforce for both the mine and the power plant.

31.4 4. The DEIS should include a detailed discussion of the proposed BLM land acquisition proposed by the Town of Rangely. Necessary reviews and analysis could be incorporated into this DEIS in order that such an exchange could be facilitated. If this exchange were linked with the siting decision, available land in Rangely for residential development would be on line coincident with construction and development of either the mine or the power plant.

A discussion of mitigation measures should include necessary actions by industry in the area of housing. Shortfalls in housing production should be projected and industry made responsible for filling the gap in committed mitigation measures that are included in the lease stipulations.

31.5 5. Contradictory statements are made on pages 281 and 282. One indicates that Colorado would receive $472,500 in Severance tax; the other states that $945,000

CWACOG Comments
Moon Lake Power Plant
Page 2

31.5 (cont.) would be received. Are these based on different production levels, and what year do these apply to?

31.6 6. The EIS fails to consider the distribution of severance tax between the State and among communities.

31.7 7. Pages 283-284: No methodology is provided to indicate how government costs are determined. Therefore, it is extremely difficult to comment upon the accuracy and adequacy of cost projections contined in the EIS. However, we offer the following criticisms:

31.8 a) In Table 4-22, no assessed value is given; how were revenues calculated for Rio Blanco County? P. 253 footnotes the Uintah County Assessor as a source, but Rio Blanco County calculations are not documented.

31.9 b) Table 4-22 overstates actual revenues in Rio Blanco County. Lags in property tax revenues (approximately 18 months for residential) are not explicitly mentioned; were these lags considered in the analysis?

31.10 c) With regard to sales tax, Rangely doesn't have an adequate retail base to generate much sales tax revenue; greater population would have to be in place to justify new retail development since there is little market to draw from in the surrounding low density population.

31.11 d) While some analysis is provided to identify basic infrastructure and community facility capacities, there is little quantitative analysis provided regarding human service delivery needs and costs. This is particularly disturbing in light of the growing body of data available from analogous situations such as the Craig experience. Since similar growth circumstances related to energy generation and development have clearly shown dramatic increases in human service needs, capital facility needs, and operating needs, it is difficult to understand why this aspect of impact was so poorly addressed in the DEIS.

31.12 e) In an effort to assist the DEIS analysis of socioeconomic impacts and needs, the CWACOG staff is providing an analysis of the actual capital facility needs and cost estimates based upon the Rio Blanco County-Wide Capital Improvements Program by enclosing the Rangely/Western Rio Blanco County section of that document. We suggest that the proportional population growth impact generated by the Moon Lake power plant and Western Fuels Coal Mine in terms of revised cost/revenue deficiencies be alleviated through a

CWACOG Comments
Moon Lake Power Plant
Page 3

31.12 (cont.) detailed front-end financial assistance program. In addition, we recommend that the final EIS recognize and provide facility and operating cost estimates for human service needs in a comprehensive manner by addressing the full range of human service needs including the following: social service counseling programs, particularly as related to drug abuse, family problems etc.; child care; specific law enforcement needs; library, recreation and social integration programs.

8. With regard to the environmental analyses presented, we have the following comments:

31.13 a) The cumulative impacts of the probable combinations of alternatives for the plant, mines, cooling system, coal transport, transmission systems and routes are impossible for a reviewer to decipher without several weeks of analysis, because the DEIS only presents an impact analysis for each separate element and alternative. We recommend that the Final EIS present a good summary table of cumulative impacts due to various probable alternative combinations; otherwise it is impossible for reviewers to recommend a particular action based on comprehensive impact analysis.

31.14 b) In general, the air quality analyses are extremely broad and lack detail. Since this will exert a major environmental impact in Colorado, particularly with respect to the dinosaur National Monument and future industrial or energy development, it appears that specific SO_2 levels and dispersion patterns should be projected for each site, with details presented regarding the model and assumptions used. Because air quality limits will be a major limitation on energy development on the West Slope, it is not sufficient for the DEIS to state that standards will be met, but that Colorado air quality increments will be used up. This is particularly true since the majority of users of the power generated by the plant will not be Colorado users, thus Colorado will not benefit. We recommend that a detailed air quality analysis of specific quantified range of impacts on Colorado for either site be included in the final EIS, and be analyzed before final decisions are made.

31.1 Tables 3-16 and 3-17 reflect that the percentage of rental units in Rio Blanco County is higher, however, Uintah County has a greater number of rental units.

31.2 The term "moderately priced" was used in interviews with local realtors, developers, and financial loan officers indicating a range of $40,000 to $70,000.

31.3 See Letter Response 31.1.

31.4 The Town of Rangely pending public sale application with the BLM is discussed on page 185 of the Draft EIS. Affected urban land use is discussed on pages 183 and 185. Acreage for residential requirements is quantified on pages 266 and 268. New proposed housing mitigation is found in Appendix 11, page R-61.

31.5 The $945,000 figure quoted on page 292 is for the 2-unit scenario and therefore reflects a higher production level.

31.6 The text has been revised to reflect this information. See the revised Chapter 4 "Local Government Impacts" section (both unit 1 and units 1 and 2 scenarios) of "Environmental Impacts of Power Plant Site and Raw Material Supply System Alternatives" in this Final EIS.

31.7 These figures were estimates derived by multiplying the project-related population by the 1977 costs provided by the counties. Also, see Letter Response 36.70.

31.8 The Final EIS contains revised and more detailed data pertaining to tax revenue estimates. This information is presented in the revised tables 4-22, 4-24, 4-32, 4-34 and Appendix 11 in this Final EIS.

31.9 Table 4-22 understates revenues that would be received by the county since it is limited to property tax on the plant and mine and does not include revenue from sales tax, personal income tax, residential property tax, and intergovernmental revenue such as state allocation per student, severance tax, revenue sharing, etc. Property tax lags were considered in the analysis. Also, see Letter Response 36.78.

31.20 While the comment on an undeveloped retail base is accurate, there would still be revenue generated there. For example, Western Fuels-Utah, Inc., has indicated their intentions that all their purchases would be consummated in their Rangely office, thereby making Rangely the point of purchase (Upadhyay, 1981). The present 1-percent sales tax levy would yield an estimated $857,134 from 1981 through 1985 from company purchases alone, according to their calculations.

31.11 See Letter Responses 36.78 and 87, also 31.9 and 10.

31.12 These items are addressed in the new mitigation measures proposed by Deseret. See Appendix 11 in this Final EIS.

Response Letter 31

31.13 BLM and REA considered the need for comparative analyzes and presented a summary analysis table (2-13) (pages 130 to 159 of the Draft EIS) which compares within alternatives (i.e., plant site to plant site, water source to water source, and pipeline route to pipeline route, etc.). Table 2-13 is also reprinted in this Final EIS. If all of the probable combinations of alternatives were independently presented, the CEQ guidelines that control EIS size (1502.7) could not be followed. If the probable combinations of two plant sites, two water sources, three coal supply alternatives, five transport alternatives, and four transmission line routes from the plant site to Tank Hollow, three transmission line routes from Tank Hollow to Mona, etc., were each addressed independently, the EIS would contain analysis for several thousand probable combinations.

31.14 Specific SO_2 levels and dispersion patterns cannot be projected for either site because of the lack of representative meteorological data. However, it can be said that levels would be equal to or less than levels predicted by the Valley Model screening process and shown in table 4-4 of the Final EIS. Because of the lack of data, a specific quantified range of impacts on Colorado from a plant at either site cannot be determined.

Comment Letter 32

**Advisory
Council On
Historic
Preservation**

1522 K Street, NW
Washington, DC 20005

Reply to:

Lake Plaza South, Suite 616
44 Union Boulevard
Lakewood, CO 80228

March 3. 1981

Mr. Greg Thayn
Team Leader
Bureau of Land Management
136 East South Temple
Salt Lake City, Utah 84111

Dear Mr. Thayn:

Thank you for your request of January 8, 1981, for comments on the environmental statement for the Moon Lake Power Plant Project in Colorado and Utah. Pursuant to Section 102(2)(c) of the National Environmental Policy Act of 1969 and the Council's regulations, "Protection of Historic and Cultural Properties" (36 CFR Part 800), we have determined that your draft environmental statement does not contain sufficient information concerning historic and cultural resources for review purposes. Please furnish the following data indicating compliance with Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. Sec. 470f, as amended, 90 Stat. 1320).

32.1

The environmental statement must demonstrate that either of the following conditions exists:

1. No properties included in or that may be eligible for inclusion in the National Register of Historic Places are located within the area of environmental impact, and the undertaking will not affect any such property. In making this determination, the Council requires:

   - evidence that you have consulted the latest edition of the National Register (Federal Register, March 18, 1980, and its monthly supplements);

   - evidence of an effort to ensure the identification of properties eligible for inclusion in the National Register, including evidence of contact with the appropriate State Historic Preservation Officers, whose comments should be included in the final environmental statement.

Comment Letter 32

Page 2
Mr. Greg Thayn
Moon Lake Power Plant
March 3, 1981

32.1 (cont.) 2. Properties included in or that may be eligible for inclusion in the National Register of Historic Places are located within the area of environmental impact, and the undertaking will or will not affect any such property. In cases where there will be an effect, the final environmental impact statement should contain evidence of compliance with Section 106 of the National Historic Preservation Act through the Council's regulations, "Protection of Historic and Cultural Properties".

Should you have any questions, please call Brit Allan Storey at (303) 234-4946, an FTS number.

Sincerely,

B.A. Storey

Acting Louis S. Wall
Chief, Western Division
of Project Review

Response Letter 32

32.1 The Draft EIS discussion of cultural resources reflects information gathered during literature searches and sample inventories. All required consultation will take place as specified. The State Historic Preservation Officers in the affected states have been contacted.

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON 20426

In Reply Refer To:

OEPR-DHRA
Cooperative Studies
Draft Environmental Impact
Statement
Moon Lake Power Plant Project,
Units 1 and 2

MAR 4 1981

Mr. Greg Thayn
Team Leader
Bureau of Land Management
University Club Building
136 East South Temple
Salt Lake City, Utah 84111

Dear Mr. Thayn:

This is in response to your letter of January 8, 1981, requesting our review and comments on the draft environmental impact statement on the Moon Lake Power Plant Project, Units 1 and 2, prepared by the Bureau of Land Management and the Rural Electrification Administration.

The proposed plan identified in the draft statement is to initiate construction of a 400-megawatt coal-fired, steam-electric generating unit in 1981; this unit could reportedly be on line in late 1984. Depending on electric load growth, it is further proposed that construction of a second 400-megawatt coal-fired unit would commence possibly as early as 1982. Of the two plant-site alternatives discussed in the report, the Bonanza site in Utah is identified as the preferred alternative.

We have reviewed the draft statement to determine the effects of the preferred alternative on the Commission's responsibilities under the Federal Power Act, Natural Gas Act, and other authorities. Such responsibilities relate to the licensing of non-Federal hydroelectric power projects, participation in the planning of Federal water and power projects, and the regulation of construction and operation of natural gas and pipeline facilities.

33.1 According to the draft statement, the two-unit powerplant would have consumptive water requirements of about 17,040 acre-feet per year. This loss would result in reduced energy generation at downstream hydroelectric plants.

33.1 (cont.) We estimate this lost generation would total approximately 20 million kilowatt-hours per year at affected main-stem Colorado River hydropower projects. The final environmental impact statement should recognize and quantify this loss in the main report and in Appendix 20, which summarizes other energy requirements associated with the Moon Lake project.

33.2 In its discussion of related projects, the draft statement indicates that the Rocky Mountain Pipeline Project (RMPP) would be constructed in late 1984 and 1985. Our records show that the construction schedule for the RMPP pipeline has been revised so that it could begin in 1982. The final EIS should indicate that the FERC and the BLM are studying alternatives in their EIS for the proposed route as well as total system alternatives for the RMPP. Resulting changes in the RMPP routing could affect the BLM's conclusions regarding the Moon Lake electric transmission line routings since "corridor-sharing" appears to be one of the major criteria for choosing preferred routes.

33.3 Construction of the Wolf Creek Reservoir, an alternative water source, would flood a small suspension bridge supporting a natural gas pipeline. Examination of available maps indicates that Cascade Natural Gas Corporation and El Paso Natural Gas Company are the only jurisdictional companies which operate gas pipelines in the area. From the available information, we are not able to determine if the pipeline mentioned is owned by either of the above companies. In any event, if the reservoir is constructed, the owner of the gas pipeline should be contacted to insure that the pipeline is not adversely affected or is relocated.

The statement indicates that both the Bonanza and Rangely sites contain oil and gas leases; the Bonanza site has one producing well. Conflicts between these leases and the proposed project, the amount and significance of any lost resources, and mitigating measures to minimize those conflicts should be discussed in the final statement.

Sincerely,

William W. Lindsay, Director
Office of Electric Power Regulation

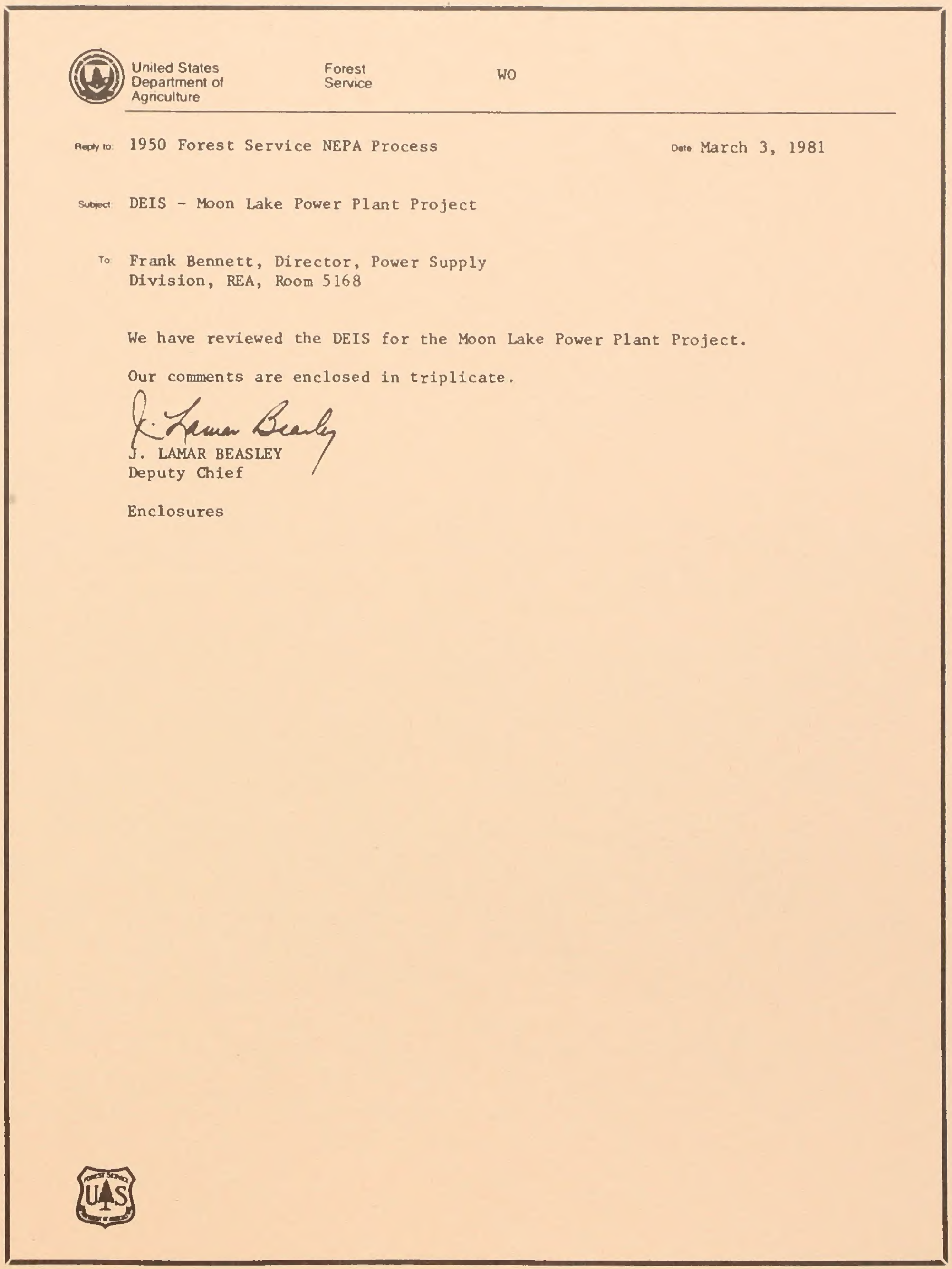
Response Letter 33

33.1 This information has been included in the "Interrelationships with Other Projects" section of Chapter 1 and in Appendix 20 of this Final EIS. It is noted that the reduced power production at downstream hydroelectric projects on the Colorado River was anticipated as the upper basin states use their water under the allocation of the Colorado River Basin Compact.

33.2 The text has been revised. See "Rocky Mountain Pipeline Project" section of "Interrelationships With Other Projects" in Chapter 1 of the Final EIS. Also, see second paragraph of page 104 in the Draft EIS.

33.3 Page 271 in the Draft EIS acknowledges possible impacts to the gas pipeline and small suspension bridge. BLM records show that the pipeline is operated by Western Slope Gas Company. As stated on page 58 of the Draft EIS, the impacts of the Rangely Reservoir project will be analyzed in a separate NEPA document which will specify mitigation for that project.

Comment Letter 34



United States Department of Agriculture
Forest Service
WO

Reply to: 1950 Forest Service NEPA Process
Date March 3, 1981

Subject: DEIS - Moon Lake Power Plant Project

To: Frank Bennett, Director, Power Supply
Division, REA, Room 5168

We have reviewed the DEIS for the Moon Lake Power Plant Project.

Our comments are enclosed in triplicate.

J. Lamar Beasley
J. LAMAR BEASLEY
Deputy Chief

Enclosures

Forest Service Comments

RE: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR MOON LAKE POWER PLANT PROJECT

General Comments

34.1 1. Eleven segments of the possible transmission system routes for the Moon Lake Project cross National Forest System lands. Important habitat within these areas has been identified for deer, elk, waterfowl, moose, sharptail, and sage grouse in the draft environmental impact statement. Proposed timing of construction activities to avoid or minimize impacts on these species appears to be adequate. Maintenance schedules should also be timed to avoid critical periods for these animals.

34.2 2. Raptor losses caused by collisions with power lines can be minimized by installing lines to raptor specifications. Habitat can be enhanced by using towers and poles attractive as raptor perches and nest sites.

34.3 3. The numerical evaluation system described in Appendix 12 does not allow extreme impacts to be accurately portrayed. In the case of Segment 37, it surfaced as the most environmentally sound--not because of the impacts, but simply because it was the shortest route. This shortcoming must be recognized and adjusted.

34.4 4. It is the Forest Service's understanding that the model portrayed in Appendix 12 for Segment 25 (Dairy Fork) yields essentially the same environmental impacts as Segment 23 (Thistle Creek). The Dairy Fork route has the disadvantage of establishing a new corridor across the Manti-LaSal National Forest. Segment 23 would be routed through Spanish Fork Canyon to Thistle--an already existing utility route. Further, Segment 25 has nearly 2500 feet of vertical relief to gain from Spanish Fork Canyon to the Manti Top. Once the Top is reached, the line rapidly descends another 2500 vertical feet to tie in at Mud Flat. Recognizing the difficulty of construction in mountainous high elevations, it would appear that the Dairy Fork route is less desirable than the route identified by Segment 23. For these reasons, we recommend that the agency's preferred alternative be changed to indicate the route down the Spanish Fork Canyon to Thistle, thence on Segment 23 down Thistle Creek to Mud Flat, thence through Salt Creek to Mona.

34.5 5. The impacts from new road construction on the Uinta and Manti-LaSal National Forests need to be highlighted in the numerical evaluation procedure as discussed in Appendix 12. The rating system should be designed to separate impacts and resulting environmental rating for critical resource areas from non-critical resource areas.

Specific Comments

	PG.	PARA.	SENT.	
34.6	8	2	2	Insert after areas inadvertent initiation or activation of slumping, etc.
34.7	8	4	-	Should state a more realistic amount instead of indicating that conifer timber has a value of $2 per thousand board feet. The individual National Forests will provide values based on recent sales of tree species involved. Use the values provided. Recommend that the DEIS team contact the concerned National Forests for applicable timber values for construction period volumes and subsequent annual growth volume losses.
34.8	11	3	1	The portion of Segment 11 of the proposed transmission line which crosses Strawberry Valley would impact what the Forest Service considers prime grazing lands.
34.9	31	last	2	Either correct the 46 miles to an accurate figure, or
	31	last	4	After the eleventh word (proposed), add--or proposed alternate--transmission line routes.
34.10	89	6	1	Include in this paragraph a statement indicating how much surface area the various types of base supports will require.
34.11	89	7	1	Change--follow within the proposed corridor, to--be constructed on approved location routes.
				Please note that Forest Service does not allow roads to be built the entire length of a transmission corridor. The "I-road" system is used, which allows for several towers to be accessed from existing road systems and then another "T-road" is allowed further down the proposed right-of-way.
34.12	93,95 97			Place segments (in parentheses) corresponding to each alternative next to the alternative in question. This would facilitate locating the alternatives and segments on maps.
34.13	97	9	1	Add after (fifth word)--built the first phase of a "piggyback" 345 KV double--circuit, etc.
34.14	103	4	3	After 1999 state--is proposed to be--routed. This is just a proposal, not a fact.

	PG.	PARA.	SENT.	
34.14 (cont.)				Note: This proposed route would conflict with the Forest Management Plan.
34.15	104	1	1	Question accuracy of 40-inch (proposed as a 36-inch).
34.16	104	1	2	Being prepared by —FERC and BLM.
34.17	118	6	1	Insert after first sentence--Reestablishment may necessitate subsequent seedlings and plantings for the complete rehabilitation of disturbed sites.
34.18	119	3	-	Lower bases should blend with adjacent landscape.
34.19	120	6	1	Insert after (seventh word) to--approved access routes.
34.20	122			Add following mitigation measures: gg. A restoration, rehabilitation, and soil stabilization plan would be submitted by the applicant for review and approval by the appropriate land management agency. This plan would cover all restoration, rehabilitation, and soil stabilization measures for project areas outside of project transportation access systems addressed under a transportation plan. hh. Intensive onsite investigations will be conducted to solve problems prior to the actual proposed action. This includes the pipeline corridor, pads, constructed roads, and service facilities. ii. No modification and reshaping earthwork, such as cuts and fills on construction roads, powerline corridor, or service facilities will be made on National Forest System lands without Forest Service approval. jj. A geologic survey and soils analysis will be completed and included in all proposed action considerations. Detailed geophysical and design investigations will be conducted to more accurately define unstable areas, or faultline locations.
34.21	142 (via Upalco-Fruitland)	5	3	Change 14.5 to 16.5 (to include the 12 miles of VRM Class II that cannot be met on the Uinta portion of Segment 11. Note: VRM objectives were not obtained from the Uinta National Forest based on the fact that it was stated that 14.5 miles of VRM Class II objective could not be met. This is the same mileage figure used on page 150 under the Bonanza to Mountain Green via Upalco-Fruitland with the route going through a totally different segment of the Forest. It appears that the 14.5 mile figure is for non-

4

	PG.	PARA.	SENT.	
34.21 (cont.)				Uinta land only. Therefore, it should be stated on page 142 that an additional 12 miles of VRM Class II cannot be met on Segment 11 from Fruitland to Tank Hollow and on page 150 it should state that an additional 5.0 miles of VRM Class II objective cannot be met on Segment 30.
34.22	142 (Via Upalco-Sowers Canyon)	5	1	Replace medium to high with low to medium increment, etc. Note: Visual contrast for this transmission alternative would be Low to Medium because many contrasts already exist along this route, i.e., paved highway, railroad, telephone lines, and power transmission lines, whereas visual contrast would be very high for the Fruitland-Tank Hollow alternative since none of these manmade features exist along this route which has high esthetic values.
34.23	142 (Under short-term/ long-term discussion)	1		Add the result can be adverse impacts on the soil resource, which are cumulative and long term.
34.24	150	3		Cultural resources also includes historical resources. Segment 35 closely parallels and crosses the Old Carter Military Road for approximately 15 miles. This road has been nominated to the National Register of Historic Sites.
34.25	150	5	3	14.5 miles should be 19.5 miles to include Uinta Forest Segment 30 distance. Note: See note above (142 5 3).
34.26	150	6		Land Use - The proposed corridor (Segment 35) is within one mile of the proposed High Uintas Wilderness Area eastern boundary, and because of the open vistas at this elevation would be visible from within the proposed wilderness area.
34.27	156	5	3	14.5 miles should be 19.5 miles.
34.28	156	4		Cultural Resources - same comment as p. 150, para. 3, above.
34.29	156	6		Land Use - same comment as p. 150, para. 6 above.
34.30	165	3	1	What system of soil typing is used? Cannot be correlated with present Forest Service soil types or Soil Conservation Service system.
34.31	206	Map		Map does not show Flaming Gorge NRA extending into Utah. Land Uses - Range on plateaus and Forest in canyons and on ridgetops.

Comment Letter 34

5

	PG.	PARA.	SENT.	
34.32	311	9	1	8 should be changed to 12 miles.
34.33	316	Add to Table		Conflicts with Uints Forest Plan. Note: The Fruitland to Tank Hollow route would "conflict with the Forest Management Planning Standards and Guidelines."
34.34	318-323	Add a Measure		Should include a requirement for nonreflective tower costings and nonspecular conductor to be used where it crosses.
34.35	318-323	Add a Measure		Helicopter construction of towers would be required on portions of Segments 11 and 25 on the Uinta and Manti-LaSal National Forests. Such construction would take place on those segment portions exhibiting sensitive, unstable soils, or steep terrain. These areas would be specified during a site-specific soil analysis.
34.36	320	Segment 11		Mile posts should be 24-30 instead of 24-29.
34.37	324	Segment 11		Add - Strawberry Recreation Complex approximate mileposts 8-18.
34.38	325	Segment 30		Milepost 11 to 20 - add Strawberry Recreation Complex.
34.39	325	Segment 19		Include Segment 19 and show under "concerns" the presence of highly erodable soils on steep ridges and toe of slopes. Under mitigation, locate proposed transmission line in canyon bottom along existing powerline ROW if possible.
34.40	326	Segment 35		Under Segment 35, concerns, add Carter Military Road and proposed High Uintas Wilderness Area. Mitigation may be to relocate line.
34.41	R-13	1		First paragraph add: 12 miles of Segment 11 (Sheep Creek Canyon) is extremely erosive and unstable and prone to slumping and landslides in particular, on dipslopes.

Response Letter 34

34.1 The text has been changed to reflect this comment. Measure 8 of "Specific Mitigating Measures Unique to This Action and Required of the Applicant by Federal Agencies" section in Chapter 4 of this Final EIS.

34.2 Item "t" on page 120 of the Draft EIS under "Measures Required of the Applicant By Federal Agencies" and page 323, Item "9" under "Specific Measures Unique to this Action and Required of the Applicant by Federal Agencies" are designed to protect raptors. It is noted in Chapter 4, page 307 of the Draft EIS, that raptors would benefit from transmission line towers.

34.3 The numerical evaluation system used for this EIS does allow for analysis of impacts that might be reduced because of averaging. However, one of the evaluation criteria shown on page R-66 of the Draft EIS is length of line, shorter length does translate into less impact. The impact analysis score can be adjusted in the narrative, however, to point out the "extreme" (significant) impacts or sensitive areas. (See example on page R-69.)

34.4 The text has been revised to reflect this comment. See "transmission System Alternatives" of "Summary of Major Environmental Consequences of the Proposed and Alternative Actions" in the Summary of this Final EIS. Also, see the reprinted sections of Appendix 12 in this Final EIS.

34.5 New road construction would be analyzed in the numerical evaluation procedure by applying selection criterial (i.e., minimizing adverse impacts to water quality thus resulting in fewer watershed impacts). New road construction in an existing access corridor would also be evaluated and weighted accordingly. Also refer to Letter Response 34.3.

34.6 The text has been revised to include this data. See "Transmission System Alternatives" section of "Summary of Major Environmental Consequences of the Proposed and Alternative Actions" in the Summary of this Final EIS.

34.7 The text has been revised to reflect current average selling prices for timber. See "Transmission System Alternatives" section of "Summary of Major Environmental Consequences of the Proposed and Alternative Actions" in the Summary of this Final EIS.

34.8 The text has been revised to include this information. See "Regulatory Compliance With Select Laws and Executive Orders" section of the Summary in this Final EIS.

34.9 The text has been revised. See "Rocky Mountain Pipeline Project" section of "Interrelationships with Other Projects" of Chapter 1 in this Final EIS.

34.10 The text has been revised. Table 2-9 shows additional acres by tower type and size.

34.11 The section you refer to describes the transmission lines and access roads proposed by Deseret. The proposed action or any alternative action would have to comply with the standard measures outlined on pages 113 through 120 of the Draft EIS. These measures assure that the respective land management agency would have final control over any construction, including access roads.

34.12 Thank you for your comment. This recommendation will be applied where applicable in this Final EIS.

34.13 The Text has been revised. See the reprinted page 97 of "Minor Text Revisions" section of Chapter 2 in this Final EIS.

34.14 The text has been revised. (See the reprinted page 103 of "Minor Text Revisions" section of Chapter 2 in this Final EIS.) Conflicts with the Uinta National Forest Management Plan are addressed in the Draft EIS on page 127, paragraph 4, and page 311, paragraph 8.

34.15 The text has been revised. See the reprinted page 104 of "Minor Text Revisions" section of Chapter 2 in this Final EIS.

34.16 The text has been revised. See the reprinted page 104 of "Minor Text Revisions" section of Chapter 2 in this Final EIS.

34.17 The text has been revised. See Item "j" of "Measures Required of the Applicant by Federal Agencies" section of Chapter 2 in this Final EIS.

34.18 The text has been revised. See Item "m" of "Measures Required of the Applicant by Federal Agencies" section of Chapter 2 in this Final EIS.

34.19 The text has been revised. See Item "s" of "Measures Required of the Applicant by Federal Agencies" section of Chapter 2 in this Final EIS.

34.20 This change has been made in the Text Revision section in Chapter 2 of this Final EIS. The revised text now includes the referenced "gg, ii, and jj" mitigation measures. Mitigation measures "gg and hh" have been listed as separate measures, "ii" has been added as a part of the Federal mitigation measure designated as "e" in the Draft EIS, "jj" has been added as a part of the Federal mitigation measure designated as "cc" in the Draft EIS. The recommended mitigation measure listed as "hh" has been rewritten as follows: "Intensive on-site investigations would be conducted prior to initiation of construction activities. These will be joint investigations, involving applicant and authorizing agency representatives."

34.21 After consultation and agreement with the Uinta National Forest Landscape Architect (Williams, 1981), corrections were made on the Chapter 3, segment 11 profile (figure 3-14, page 225 of the Draft EIS) for USFS VRM CLass designations. The following changes were made: Milepost 12-19 = changed to Class III; milepost 19-20 = changed to Class IV; mileposts 20-26 = changed to Class III; and mileposts 26-30 changed to Class II.

These changes now indicate that there are 4 miles of VRM Class II on the segment 11 portion crossing the Uinta National Forest.

After the above corrections were made, the VRM classes were recalculated for the unit 1 Upalco-Fruitland routing alternatives. This recalculation pointed out an error in total mile figures for VRM Classes II and IV. Two miles of additional Class II with a corresponding reduction of 2 miles of Class IV resulted from the recalculation. The 14.5-mile figure referred to in the USFS comment is now 16.5 miles, with 4 miles of Class II on USFS land and 12.5 miles of Class II on private or other land ownership.

34.21 (cont.) The landscape architect (Williams, 1981) stated that the Chapter 3, segment 30 profile (Figure 3-19, page 231 of the Draft EIS) was correct for the Uinta National Forest (i.e., the 5 miles of USFS land has a VRM Class III designation).

34.22 Table 2-13 has been revised in this Final EIS.

34.23 Table 2-13 has been revised in this Final EIS.

34.24 Table 2-13 has been revised in this Final EIS.

34.25 See Letter Response 34.21.

34.26 Table 2-13 has been revised in this Final EIS.

34.27 See Letter Response 34.21.

34.28 Table 2-13 has been revised in this Final EIS.

34.29 Table 2-13 has been revised in this Final EIS.

34.30 Soils information was derived by Burns and McDonnell from Soils of Utah, (USDA, SCS, 1975) and the National Atlas of the United States of America, (USDI, Geological Survey, 1970).

The latter publication was used for the soils and erosion hazard information given in the environmental profiles. Present USFS and SCS soil-typing systems can be correlated with the data given on the environmental profiles through the National Atlas. The soils data in the environmental profiles is general and not as specific in nature as a typical SCS soil survey.

34.31 Problems with printing the Moon Lake Draft EIS resulted in registration/detail loss. Figure 3-7 is reprinted in this Final EIS.

34.32 The text has been revised. See "Land Use Plans and Controls" section of "Transmission systems" in Chapter 4 of this Final EIS.

34.33 The referenced table is a BLM Land Use Plan Conflict Table. The Forest Service concern is addressed under Land Use Plans and Controls, page 311-315 of the Draft EIS.

34.34 The Uinta National Forest Minerals and Special Use staff, has requested that the comment read as follows (3/13/81):

> Nonreflective tower coatings and nonspecular conductors will be required when transmission lines cross or parallel highways and recreation sites from mileposts 12 to 30 of segment 11, mileposts 20 to 24 and 59 to 65 of segment 19, and mileposts 0 to 2 and 6 to 7.5 of segment 21.

A new mitigation measures, Item 13, was added to the "Specific Mitigating Measures" in Chapter 4 of this Final EIS.

Response Letter 34

34.35 The requirements specified by this measure are covered by mitigation measure 2 on page 121 of the Draft EIS.

A new section for Appendix 20, "Net Energy Analysis and Cost Comparison of Moon Lake Project Alternatives" has been added to this Final EIS covering routes, segments, and associated costs where the Forest Service would require helicopter construction.

34.36 Table 4-44 has been revised in this Final EIS.

34.37 Table 4-45 has been revised in this Final EIS.

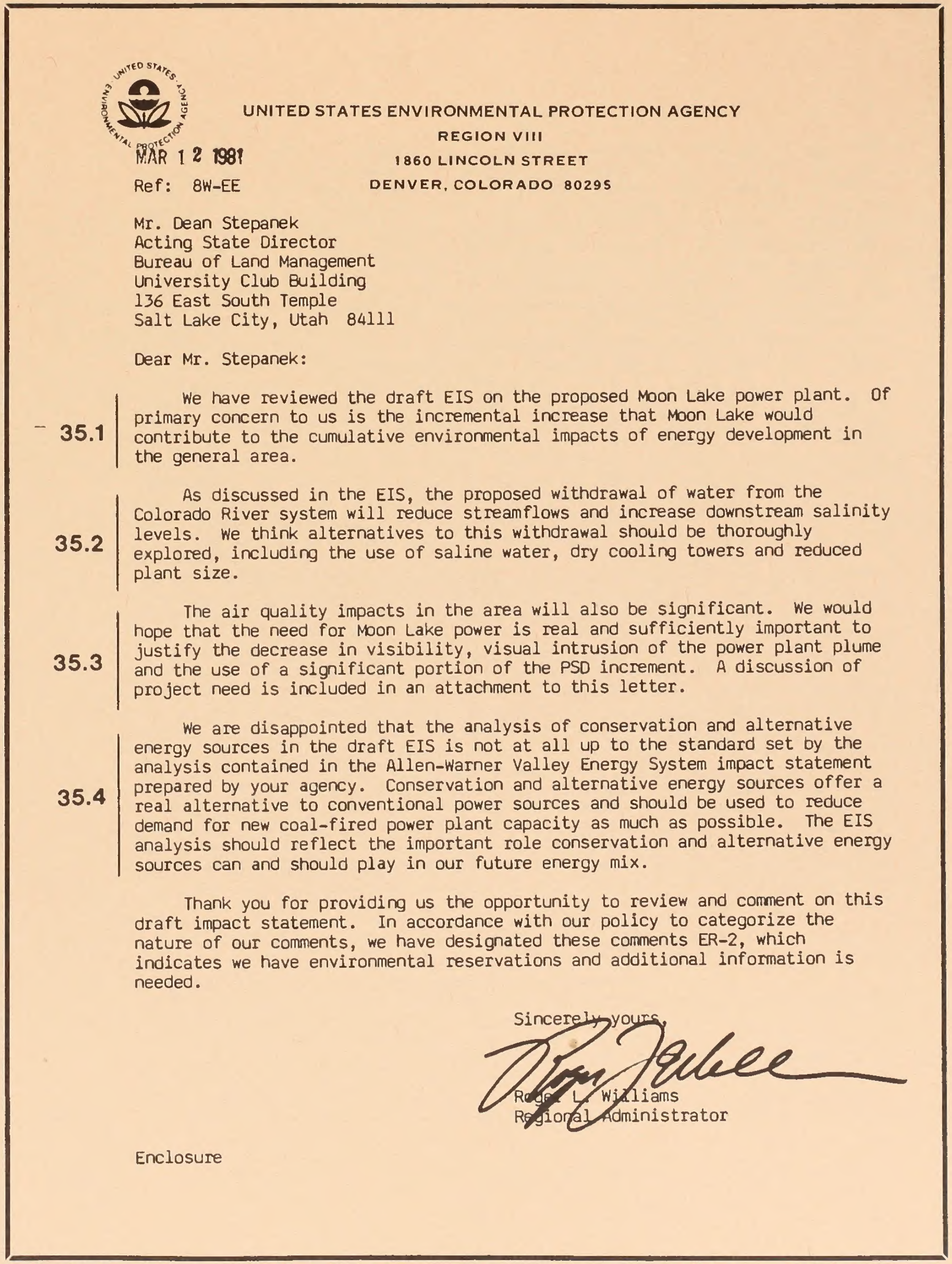
34.38 Table 4-45 has been revised in this Final EIS.

34.39 Table 4-45 has been revised in this Final EIS.

34.40 Table 4-45 has been revised in this Final EIS.

34.41 The text has been revised. See "Text Revision" section of Appendix 19 in this Final EIS.

Comment Letter 35



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
1860 LINCOLN STREET
DENVER, COLORADO 80295

MAR 12 1981

Ref: 8W-EE

Mr. Dean Stepanek
Acting State Director
Bureau of Land Management
University Club Building
136 East South Temple
Salt Lake City, Utah 84111

Dear Mr. Stepanek:

35.1 We have reviewed the draft EIS on the proposed Moon Lake power plant. Of primary concern to us is the incremental increase that Moon Lake would contribute to the cumulative environmental impacts of energy development in the general area.

35.2 As discussed in the EIS, the proposed withdrawal of water from the Colorado River system will reduce streamflows and increase downstream salinity levels. We think alternatives to this withdrawal should be thoroughly explored, including the use of saline water, dry cooling towers and reduced plant size.

35.3 The air quality impacts in the area will also be significant. We would hope that the need for Moon Lake power is real and sufficiently important to justify the decrease in visibility, visual intrusion of the power plant plume and the use of a significant portion of the PSD increment. A discussion of project need is included in an attachment to this letter.

35.4 We are disappointed that the analysis of conservation and alternative energy sources in the draft EIS is not at all up to the standard set by the analysis contained in the Allen-Warner Valley Energy System impact statement prepared by your agency. Conservation and alternative energy sources offer a real alternative to conventional power sources and should be used to reduce demand for new coal-fired power plant capacity as much as possible. The EIS analysis should reflect the important role conservation and alternative energy sources can and should play in our future energy mix.

Thank you for providing us the opportunity to review and comment on this draft impact statement. In accordance with our policy to categorize the nature of our comments, we have designated these comments ER-2, which indicates we have environmental reservations and additional information is needed.

Sincerely yours,

Roger L. Williams
Regional Administrator

Enclosure

Comment Letter 35

ATTACHMENT

Our review of the draft EIS on the proposed Moon Lake power plant raises the issue of project need, which we view as very important because unneeded or oversized projects cause unnecessary environmental impacts. In the push to develop our national energy resources, there is an inherent danger that the momentum of this movement could reduce our objectivity on actual needs. We think it is perhaps more important now than ever before that we look very hard at the real need for each and every project.

35.3 In the past decade utilities have had a record of consistently overestimating projected loads (see Energy Daily article). Coupled with this general trend to overestimate, the power requirement study for the Moon Lake project was completed in 1978 during a period of high growth rates in Utah. Since national economic conditions have slowed population growth in Utah considerably (see Salt Lake Tribune article), we think it is very important that the need for the Moon Lake project be evaluated in light of the latest information available. We hope the new power requirement study being prepared (page 18, EIS) accurately reflects current and likely future growth conditions. We would appreciate receiving a copy of this latest projection of power needs as soon as it is available.

35.5 Along the line of need for the project, the discussion of oil shale development (page 23, EIS) and its potential to increase the need for Moon Lake supplied power should be expanded and clarified. It is our understanding that much of the oil shale development will be a net exporter of electricity. For example, at a level of 100,000 barrels a day, the White River Shale Project would export 107 megawatts (White River Shale Project Detailed Development Plan, November 1980). The availability of electricity exported from oil shale development should be examined and factored into the needs analysis for Moon Lake.

Response Letter 35

35.1 Thank you for your comment. This information will be used in the decision-making process.

35.2 See Letter Response 14.3 and Oral Testimony Responses 8 and 9. If water were released from Flaming Gorge Reservoir, impacts to the Green River downstream from the dam due to an increased release of 12 cfs (unit 1) would be essentially unnoticeable in terms of water flows, salinity, and temperatures (see Oral Testimony Response 3). Impacts to the reservoir from the increased withdrawal would likewise be unnoticeable because of the small amount of water involved. The same analysis would hold true for future withdrawals and releases (unit 2) of an additional 12 cfs if needed.

35.3 The new PRS is based on the latest information. A copy can be obtained from REA at the address noted in the front of the EIS.

35.4 When the power needs and generation mix of the participants in the Allen-Warner Valley project (AWV) are compared to the participants in the Moon Lake project, there should be no real surprise why a more extensive analysis of conservation and alternative energy sources was not deemed necessary. Three of the four AWV participants are major utilities; two are based in the State of California. These utilities already have extensive base load capacity much of which is oil-fired at a cost nearly double that of coal-fired capacity. With continued reluctance to site coal-fired generation within California, coupled with continuing increases in the price of oil, it is apparent why the State of California is promoting alternative energy sources. The development of certain alternative energy sources in Southern California may be more cost competitive when compared to the cost of electricity from oil-fired stations or electricity wheeled hundreds of miles from another state. In view of the California emphasis, and the availability of an intensive data base on the subject developed by California State agencies, the AWV EIS contained or referenced detailed information. Similar intensive state emphasis and developed data basis does not exist for the Deseret service area.

REA does not believe that some alternative energy sources (e.g., wind and solar) are sufficiently developed to warrant the dependence implied in the AWV EIS. Other forms such as geothermal are well suited for expanded development in appropriate areas of the state; however, the widespread expansion of low-head hydro may not be acceptable to California residents if it includes developing the remaining free-flowing streams. In the area of energy conservation, the AWV Final EIS admits a reluctance of consumers to change their lifestyles (pages 4-164, 165) and a relatively long period of time to implement such measures (page 2-42).

Deseret, on the other hand, is a relatively new utility with only 100 MW of base load capacity which requires additional base load generation that is dependable as well as cost effective. Both REA and Deseret have determined that the most suitable alternative is coal-fired generation. Alternative forms of generation aside from nuclear are neither dependable, reliable, nor cost competitive at the present time. This position is further verified by articles on wind turbines in Wyoming and solar energy in Sweden which appeared in the News Beat section of Electrical World, March 1981, on pages 14 and 16. Since the bulk of historical and predicted future usage will be large commercial loads, energy savings in the private sector are not expected to substantially influence load growth. Deseret, as well as other REA borrowers, are and will continue to follow and, whenever feasible, participate

35.4 (cont.) in the development of alternative energy sources. However, this participation will not be allowed to jeopardize the integrity of member systems and their ability to serve their consumers loads.

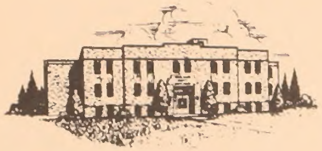
The importance of conservation and alternative energy sources in the future energy mix of Deseret's members is acknowledged and has been both considered and evaluated in the Moon Lake Draft EIS (reference pages 106-109, Appendix 7 and 9). The fact that the level of evaluation is not at the same level as the AWV is not a reluctance on the part of REA or Deseret but due to the present capability of the Deseret system and the nature of demand for projected future growth.

See Letter Response 22c.2 and Appendix 9 of the Draft EIS.

35.5 The development plan for the White River Shale project was a "draft" plan, which has since been revised. Presently, White River Shale do not plan to produce electricity for "export". Plans do call for electricity production for in-house use. However, over the life of the project, they will be a net importer of electricity. On-site construction is planned to start this year (1981) with retort operations to commence in 1985. Through this time frame they will require electrical energy from external sources (Goodlove, 1981). Thus, the White River Shale project would not affect the needs of the Moon Lake project.

Presently, TOSCO Corporation's preliminary plans for development of the Sand Wash oil shale unit indicate that excess electricity could be a by-product, although TOSCO would have an initial net electricity demand. This could have some impact on the need/timing of the Moon Lake project unit 2; however, it would not affect the purpose and need of unit 1.

Comment Letter 36



OFFICE OF
BOARD OF COUNTY COMMISSIONERS
RIO BLANCO COUNTY
BOX 1047
MEEKER, COLORADO 81641

March 3, 1981

BY HAND

Mr. Gregory Thayn
Team Leader
Bureau of Land Management
University Club Building
136 East South Temple
Salt Lake City, Utah 84111

Re: Draft Environmental Impact Statement for the Moon Lake Power Plant Project, Units 1 and 2

Dear Mr. Thayn:

We deliver herewith the comments of the Rio Blanco Board of County Commissioners on the Draft Environmental Impact Statement for the Moon Lake Power Plant Project, Units 1 and 2, made available for public comment on January 8, 1981.

As detailed more fully in our comments, the Draft EIS is legally and factually deficient in a number of significant respects, including inadequate and inaccurate disclosure of the environmental and socioeconomic impacts of the project, failure adequately to analyze and consider the Rangely site alternative to the project, and failure to provide adequate mitigation for the environmental and socioeconomic impacts of the project. The facts presented in the Draft EIS and the analysis of alternatives is a totally inadequate basis for informed decision-making by BLM and REA as to whether to grant rights-of-way and a loan guarantee, and, if so, subject to what terms and conditions to mitigate socioeconomic impacts.

Comment Letter 36

Mr. Gregory Thayn
March 3, 1981
Page Two

We urge that you give serious consideration to the comments and recommendations contained herein. If we can provide further information, please do not hesitate to contact us.

Sincerely yours,

K. O. Kenney
Kenneth O. Kenney
Chairman

Enclosure

COMMENTS OF THE RIO BLANCO BOARD OF COUNTY COMMISSIONERS ON DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR MOON LAKE POWER PLANT PROJECT, UNITS 1 AND 2

These comments are submitted by the Rio Blanco Board of County Commissioners, Meeker, Colorado 81641 (hereafter referred to as "Rio Blanco" or "the County") in response to the invitation extended on January 8, 1981 by the Bureau of Land Management ("BLM") and the Rural Electrification Administration ("REA"), to review and comment upon the Moon Lake Power Plant Project, Units 1 and 2, Draft Environmental Impact Statement ("draft EIS" or "DEIS") prepared by the BLM Richfield District Office and REA. These comments are also submitted in accordance with Rio Blanco County's Memorandum of Understanding with BLM, dated July 7, 1977.

The Rio Blanco Board of County Commissioners constitutes the governing body of Rio Blanco County, Colorado. Rio Blanco County is the location of one of two alternative sites being considered for location of the Moon Lake Power Plant, by Deseret Generation and Transmission Cooperative ("Deseret"), the project proponent. The

preferred source of coal for the project, the proposed Deserado Mine, is located in Rio Blanco County. If the power plant and the mine should both be located in Rio Blanco County, the County would bear most of the impacts of the project as a whole, but would be in a favorable position to deal with those impacts by virtue of tax revenues which would be generated by the combined facilities. If, however, the mine should be developed in Rio Blanco County but the power plant located in Bonanza, Utah -- as proposed by REA in the DEIS -- Rio Blanco County would still bear the brunt of the environmental and socioeconomic impacts of the project, but would be denied offsetting tax revenues from the power plant to mitigate those impacts.

Because of the substantial adverse impacts of the proposed project upon Rio Blanco County and its citizens if the power plant is built in Utah, the comments of the County on the draft EIS -- and the County's recommendations as to alternatives and mitigation measures -- must be given the most careful and objective consideration by BLM and REA.

I. INTRODUCTION

Rio Blanco County, located in the upper northwest corner of Colorado, consists of approximately 3,263 square miles (about 2.2 million acres), roughly 75 percent of which is owned by the federal government. The County is sparsely populated, with 6,294 inhabitants (1980 Preliminary Census). Most of these people live in the towns of Meeker, the county seat (pop. 2,362), or Rangely (pop. 2,112). The livelihood of the County is derived primarily from energy-related industries (oil and gas, coal, and oil shale), agriculture, and tourism. The per capita income of the County's citizens is below the average for the state of Colorado.

Rio Blanco County is distressed that one of the lead agencies, the Rural Electrification Administration, has tentatively concluded that the Bonanza, Utah site -- rather than the Rangely, Colorado site -- is the "preferred" site for construction of the power plant. It is
likewise deeply disturbed by the fact that neither BLM nor
36.1 REA has seen fit, given that tentative conclusion, to
provide for mitigation of the substantial adverse

36.1 (cont.) environmental and socioeconomic impacts of the project which will be felt in Rio Blanco County.

On its face, the concept of building a power plant in Utah, with the accompanying need to construct a 35-mile railroad to transport the coal from the Rangely mine and transmission lines to supply power to the mine, -- rather than a "mine-mouth" operation as is available at the Rangely site -- makes no sense from an environmental or an economic point of view. It has always been and remains the County's firm position that the power plant, as well as the mine, should be located in Rio Blanco County for environmental and economic reasons.

If the power plant is authorized to be built in Utah while the mine is built in Colorado, Rio Blanco County will suffer the impacts of a dramatic population growth -- approximately one-third its present population --
36.2 with the accompanying need for substantial capital expenditures for community infrastructure as well as ongoing funds for maintenance of that infrastructure and provision of public services. Yet it will be denied the benefit of tax revenues from the power plant -- which will be far

36.2 (cont.) greater than those from the coal mine -- to pay for that investment and those services. If, on the other hand, the power plant is built in Colorado, there will be some socioeconomic impacts in Uintah County, Utah communities such as Vernal, but these impacts will be considerably less than those which would be experienced in Colorado if the plant is built in Utah.

36.3 If the power plant should -- contrary to all reason -- be authorized to be built in Utah, BLM and REA must condition grant of the requested rights-of-way and loan guarantee upon substantial, binding efforts by Deseret to mitigate the impacts in Rio Blanco County. The cost of such mitigation would be at least $10,800 for community infrastructure investment for each person expected to be brought to the County by virtue of employment in the power plant and mine (or associated population growth) and $1,020 per person per year during the life of the project for maintenance of facilities and provision of services. If the power plant should be built in Rio Blanco County, a comparable mitigation plan must be developed and provided for Uintah County, Utah.

Rio Blanco sets forth in detail below the bases for its conclusions and recommendations. In particular, it documents that the socioeconomic impacts in Rio Blanco County of a power plant built in Bonanza, Utah will be far greater than those disclosed in the draft EIS, and that the draft EIS is grossly inadequate in its disclosure and analysis of the two alternative sites. The County also sets forth its basis for concluding that, as a matter of law, BLM and REA have the legal authority and the legal responsibility to issue rights-of-way and a loan guarantee for either site only if terms and conditions are included in those instruments which provide for full mitigation of socioeconomic impacts in the affected jurisdictions. 36.4

Rio Blanco demonstrates below that the sole reason offered for selecting the Bonanza, Utah site rather than the Rangely, Colorado site -- the "proper timing for a firm water supply and whether a firm water supply would even be available" (DEIS at 125) -- is unfounded. The County will demonstrate that concerns with respect to the timing and availability of water supply for the Rangely site are exaggerated and based upon misunderstandings and misinformation. The County will also demonstrate that difficulties with respect to the Bonanza site and its Green River source of water -- involving the problems of compliance with the Endangered Species Act -- have been understated or ignored. In fact, there are no significant differences between the Rangely and Bonanza sites regarding water and Endangered Species Act considerations. 36.5 Although the DEIS concludes that Endangered Species Act problems can be avoided by use of Green River water with compensating releases from the Flaming Gorge Reservoir, analysis reveals that this is incorrect. Thus, to the extent that any delays might be experienced in establishing a firm water supply for the Rangely site, similar considerations will pose comparable delays for the Bonanza site. Rio Blanco County believes that Endangered Species Act considerations should not delay either the Rangely Reservoir project (Taylor Draw and Wolf Creek) or projects on the Green River; however, if such considerations are to delay progress on the one, they must be applied evenhandedly to the other.

The comments below address a number of other deficiencies in the draft EIS. These include: (1) the failure adequately to consider air quality issues; (2) the failure properly to consider economic issues; and (3) the failure to comply with a number of Council on Environmental Quality regulations applicable to the agencies.

The County cannot overemphasize at the outset the importance of a full and adequate treatment and analysis of the interstate impacts of an energy development project of this type, and the grave concern on the part of the Board of County Commissioners that unacceptable, unmitigated environmental and socioeconomic impacts may fall upon the citizens of Rio Blanco County as a result of the proposed actions. The concerns of the County are fully supported by the State of Colorado, which is filing its own set of comments on the DEIS.

The County is particularly concerned that Deseret, BLM and REA have chosen to ignore problems urgently and repeatedly called to their attention by officials of the 36.6 State and the County. The fact that Deseret has taken a number of actions (such as obtaining a PSD permit from the

36.6 (cont.) United States Environmental Protection Agency) for the Bonanza site but not for the Rangely site strongly supports the conclusion that the entire EIS process, with its purported analysis of alternatives, has not been the open-minded, good-faith exercise required by the National Environmental Policy Act, but rather an unlawful, *ex post* rationalization of a decision already made. Throughout our comments, we demonstrate comments or actions by the reviewing federal agencies which reflect a lack of objectivity and a predetermined result.

Each of the comments made by the County must be carefully evaluated and full and thoughtful responses provided by the federal agencies in the final EIS. The course of action recommended in the draft EIS is an intolerable one from the point of view of Rio Blanco County. It is inconsistent with the legal requirements imposed by the National Environmental Policy Act, the Federal Land Policy and Management Act, and the Rural Electrification Act of 1936. Rio Blanco County urges that the deficiencies in the draft EIS be corrected in the final EIS and that the federal agencies reverse their tentative decision

to permit the power plant to be located in Utah. The law requires no less.

II. GENERAL COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

Before addressing specific deficiencies in the DEIS, the County would like to present some general observation on the applicable legal requirements and identify numerous general deficiencies in the DEIS. As stated in section 1502.1 of the regulations implementing NEPA promulgated by the Council on Environmental Quality ("CEQ"):

> "The primary purpose of an environmental impact statement is to serve as an action-forcing device to insure that the policies and goals defined in the Act are infused into the ongoing programs and actions of the Federal Government. It shall provide full and fair discussion of significant environmental impacts and shall inform decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment. Agencies shall focus on significant environmental issues and alternatives and shall reduce paperwork and the accumulation of extraneous background data. Statements shall be concise, clear, and to the point, and shall be supported by evidence that the agency has made the necessary environmental analyses. An environmental impact statement is more than a disclosure document. It shall be used by Federal officials in conjunction with other relevant material to plan actions and make decisions." 40 C.F.R. § 1502.1.

During the scoping process, the lead agencies identified five major issues relevant to an analysis of Deseret's proposal to build the Moon Lake Power Plant Project.*/ These were: (1) comparative financial costs of alternatives; (2) social and economic impacts on communities in Utah and Colorado; (3) degradation of air quality; (4) impacts on endangered fish species in the Green and White Rivers; and (5) effects on the salinity of the Colorado River system. DEIS at 2. To the extent that these major issues are discussed at all in the draft EIS, however, they are lost in a maze of extraneous background data rather than the focus of a significant discussion of
36.7 environmental issues and alternatives. Alternatives which would "avoid or minimize adverse impacts or enhance the quality of the human environment" (40 C.F.R. § 1502.1) are either ignored or discussed in the most cursory manner possible. As the discussion that follows demonstrates, this not only violates the CEQ regulations, but also makes

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*/ Although additional issues were identified, see DEIS at 24-25, the only treatment of those issues in the DEIS consists of acknowledgment that they are indeed issues. There is no discussion of how those issues could be resolved or of how, if they were, such resolution would have adverse or favorable environmental impacts.

it difficult if not impossible for the agencies involved to reach a decision that maximizes compliance with the NEPA mandate.

To achieve the purposes set forth in section 1502.1, federal agencies are required to prepare environmental impact statements in the following manner:

> "(a) Environmental impact statements shall be analytic rather than encyclopedic.
>
> "(b) Impacts shall be discussed in proportion to their significance. There shall be only brief discussion of other than significant issues. As in a finding of no significant impact, there should be only enough discussion to show why more study is not warranted.
>
> "(c) Environmental impact statements shall be kept concise and shall be no longer than absolutely necessary to comply with NEPA and with these regulations. Length should vary first with potential environmental problems and then with project size.
>
> "(d) Environmental impact statements shall state how alternatives considered in it and decisions based on it will or will not achieve the requirements of sections 101 and 102(1) of the Act and other environmental laws and policies.
>
> "(e) The range of alternatives discussed in environmental impact statements shall encompass those to be considered by the ultimate agency decisionmaker.

> "(f) Agencies shall not commit resources prejudicing selection of alternatives before making a final decision (§ 1506.1).
>
> "(g) Environmental impact statements shall serve as the means of assessing the environmental impact of proposed agency actions, rather than justifying decisions already made." 40 C.F.R. § 1502.2.

We submit that the draft EIS fails woefully to fulfill these criteria.

36.8 First, the draft EIS is encyclopedic rather than analytic. It does not analyze the comparative financial costs of alternatives -- the first of the five major issues identified in the scoping process -- except in the Appendix. Even then, the burden is placed on the reader to decipher and interpret the costs associated with the available alternatives. Thus, for example, in connection with the Rangely site alternative, cost figures are provided for an electric railroad coal transportation alternative even though it seems clear to everyone concerned that the electric railroad is not legitimately associated with a Rangely plant site. This has the obvious (and perhaps intended) effect of distorting and masking the economic advantages of a Rangely site.

Similarly, socioeconomic impacts -- the second major issue -- are described, but there is no breakdown of costs and revenues between the respective counties and towns and again there is no analysis of how alternatives
36.9 (other than the no-action alternative) might differentially cause or reduce or mitigate such impacts. It is not made clear that locating the plant where the impacts would be felt would facilitate mitigation by providing tax revenues to offset socioeconomic expenditures. There are at least three separate discussions of air quality -- major issue number three -- but none focuses on the dif-
36.10 ferential impacts of the alternatives suggested. Instead, there is simply a catalogue of data which the draft concedes does not accurately reflect the conditions that may be expected to occur. Consequently, the reader comes away confused and unknowing -- and perhaps thinking that no matter what course is chosen, there will be no difference. This conclusion is obviously erroneous.

Second, impacts are not discussed in proportion to
36.11 their significance. Thus, for example, the draft EIS and the appendices thereto devote lengthy discussions to

36.11 (cont.) various routes for transmission line segments, an issue nowhere identified as significant. The reader is simply left to wonder why these issues are treated in such depth. On the other hand, socioeconomic impacts and measures for their mitigation, clearly major issues (DEIS at 24), are discussed in summary and formalistic fashion, without consideration of possible solutions beyond those
36.12 minimal and totally inadequate measures suggested by the applicant as possibilities. See, e.g., DEIS App. 11 at R-61 to R-63.

Third, and very significantly, the draft EIS does not state how alternatives considered and decisions based on it will achieve the requirements of NEPA and other environmental laws and policies. Nor does the draft any-
36.13 where discuss the range of alternatives, including mitigation measures, to be considered and implemented, such as conditioning rights of way and loan guarantees on appropriate mitigation of impacts to the human environment, including socioeconomic impacts.*/ Instead, there are

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*/ As discussed elsewhere in our comments, the authorizing agencies are clearly under an obligation to implement [Footnote continued]

36.13 (cont.) general discussions of: minimal and totally inadequate mitigation measures that "may" be supported by the applicant (DEIS at 115); mitigation by "consultation" (DEIS at 10); and mitigation whose "success . . . would be commensurate with the techniques used." DEIS at 120.

We focus here on the alternatives issue because, as the CEQ regulations make clear, the discussion of alternatives, including mitigation, is "the heart of the

---

[Footnote continued]
appropriate mitigation measures, whether by conditioning rights of way or loan guarantees. That the agencies have such authority seems clear, and is in any event established by 40 C.F.R. section 1500.6:

> "Each agency shall interpret the provisions of the Act as a supplement to its existing authority and as a mandate to view traditional policies and missions in the light of the Act's national environmental objectives. Agencies shall review their policies, procedures, and regulations accordingly and revise them as necessary to insure full compliance with the purposes and provisions of the Act. The phrase 'to the fullest extent possible' in section 102 means that each agency of the Federal Government shall comply with that section unless existing law applicable to the agency's operations expressly prohibits or makes compliance impossible." (Emphasis supplied.)

environmental impact statement." 40 C.F.R. § 1502.14.

Section 1502.14 specifically mandates that:

> "Based on the information and analysis presented in the sections on the Affected Environment (§ 1502.15) and the Environmental Consequences (§ 1502.16), it should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public. In this section agencies shall:
>
> "(a) Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.
>
> "(b) Devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits.
>
> "(c) Include reasonable alternatives not within the jurisdiction of the lead agency.
>
> "(d) Include the alternative of no action.
>
> "(e) Identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and

identify such alternative in the final statement unless another law prohibits the expression of such a preference.

"(f) Include appropriate mitigation measures not already included in the proposed action or alternatives." (Emphasis supplied.)*/

Similarly, section 1502.16 requires that an EIS include discussions of:

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*/ See also 40 C.F.R. § 1500.2:

> "Federal agencies shall to the fullest extent possible:
>
> "(a) Interpret and administer the policies, regulations, and public laws of the United States in accordance with the policies set forth in the Act and in these regulations.
>
> * * *
>
> "(e) Use the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment.
>
> "(f) Use all practicable means, consistent with the requirements of the Act and other essential considerations of national policy, to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions upon the quality of the human environment."

"(a) Direct effects and their significance (§ 1508.8).

"(b) Indirect effects and their significance (§ 1508.8).

* * *

"(d) The environmental effects of alternatives including the proposed action. The comparisons under § 1502.14 will be based on this discussion.

"(e) Energy requirements and conservation potential of various alternatives and mitigation measures.

"(f) Natural or depletable resource requirements and conservation potential of various alternatives and mitigation measures.

"(g) Urban quality, historic and cultural resources, and the design of the built environment, including the reuse and conservation potential of various alternatives and mitigation measures.

"(h) Means to mitigate adverse environmental impacts (if not fully covered under § 1502.14(f))." (Emphasis supplied.)

"Effects" and impacts are defined in section 1508.8 in the following terms:

"'Effects' include:

"(a) Direct effects, which are caused by the action and occur at the same time and place.

> "(b) Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.
>
> "Effects and impacts as used in these regulations are synonymous. Effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial." 40 C.F.R. § 1508.8 (emphasis supplied).

And section 1505.3 provides in the following terms for measures designed to mitigate such effects and impacts:

> "Mitigation (§ 1505.2(c)) and other conditions established in the environmental impact statement or during its review and committed as part of the decision shall be implemented by the lead agency or other appropriate consenting agency. The lead agency shall:
>
> "(a) Include appropriate conditions in grants, permits or other approvals.

> "(b) Condition funding of actions on mitigation.
>
> "(c) Upon request, inform cooperating or commenting agencies on progress in carrying out mitigation measures which they have proposed and which were adopted by the agency making the decision." 40 C.F.R. § 1505.3 (subparagraph (d) omitted).

We submit that the draft EIS is defective both because it fails to incorporate a meaningful discussion of the alternatives, focusing instead on rationalizing the applicant's desire to locate the power plant at the Bonanza site, and because it fails accurately to depict the impacts that would result from a decision to place the
36.14 plant at the Bonanza site. As a result, there is no discussion of potential financial consequences to Deseret of failing to mitigate socioeconomic impacts in Rio Blanco County, thereby incurring the risk of unacceptably high worker turnover. Nor is there any discussion of the mitigation alternatives that would be made both appropriate and necessary by a decision to allow the plant to be built at the Bonanza site.

The mitigating measures discussed in the draft EIS (at 113-116, 318-323) are certainly necessary; many of them are in fact mandated by federal, state, or local law. However, it is myopic in the extreme to conclude that the only impacts generated by a project of this magnitude for which specific mitigation can be achieved are in the nature of dust emissions (DEIS at 113, 319) and the possibility that waterfowl will collide with transmission lines (DEIS at 320).

36.15 When socioeconomic impacts have been identified as a major issue -- indeed the major issue -- it is totally inappropriate to limit Deseret's responsibility in the area of community impacts to aiding local governments "in planning for project-related community impacts" (DEIS at 114) and to identifying "several social and economic mitigating measures that they will or may support" (id. at 115). The socioeconomic impacts of a project of this magnitude can hardly be mitigated by the addition of another police car or a new teacher in the Town of Rangely; to assert that they can or should is to be deliberately blind to the fiscal stresses and dislocations caused by imposing a project (Units 1 and 2) worth approximately $1 billion on the limited public services of nearby communities. To view impacts and necessary mitigation

36.15 (cont.) measures so narrowly is to violate both the terms and the spirit of NEPA and its implementing regulations.

36.16 Surely, the authors of the draft EIS must have realized that a meaningful discussion of the relative costs and benefits, including but not limited to monetary factors, of placing the plant in Bonanza or in Rangely cannot be limited to a recognition that, if the plant is placed in Bonanza, there will be a genuine imbalance of costs and revenues in Rangely and Rio Blanco County. Surely, the same planners must have realized that a vague and unsupported assertion that such imbalances might be redressed by Oil Shale Trust Fund or severance tax revenues is nothing more than a red herring, for such funds are simply not available to the County or to Rangely to begin to mitigate the impacts caused by the power plant's construction. Similarly, the preparers of the DEIS must have realized that Deseret will have considerable incentives to begin construction of the second unit as soon as possible -- for air permit and construction cost reasons and because it may well be able to sell any electricity generated in excess of its own needs -- and that an

36.16 (cont.) accelerated construction schedule would only increase exponentially the impacts from the plant, rendering mitigation even more necessary. Yet none of these facts is disclosed.

36.17 These are just a few examples of alternatives and problems that are not given sufficient attention in the draft EIS. One can only speculate that these failings stem at least in part from a desire to expedite the project at any cost, a desire that contravenes the NEPA regulations.

As noted above, section 1502.2(g) states that environmental impact statements "shall serve as the means of assessing the environmental impact of proposed agency actions, rather than justifying decisions already made." This mandate is reinforced by section 1506.1, which states in relevant part that:

> "(a) Until an agency issues a record of decision as provided in § 1505.2 (except as provided in paragraph (c) of this section), no action concerning the proposal shall be taken which would:
>
> "(1) Have an adverse environmental impact; or

> "(2) Limit the choice of reasonable alternatives.
>
> "(b) If any agency is considering an application from a non-Federal entity, and is aware that the applicant is about to take an action within the agency's jurisdiction that would meet either of the criteria in paragraph (a) of this section, then the agency shall promptly notify the applicant that the agency will take appropriate action to insure that the objectives and procedures of NEPA are achieved.
>
> * * *
>
> "(d) This section does not preclude development by applicants of plans or designs or performance of other work necessary to support an application for Federal, State or local permits or assistance. Nothing in this section shall preclude Rural Electrification Administration approval of minimal expenditures not affecting the environment (e.g. long leadtime equipment and purchase options) made by nongovernmental entities seeking loan guarantees from the Administration." 40 C.F.R. § 1506.1.

In addition, section 1500.1 states that:

> "NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken." 40 C.F.R. § 1500.1(b).

36.18 Although the draft EIS asserts that no decision has been made regarding whether to grant the necessary loan

36.18 (cont.)

guarantee and rights-of-way, and if so, as to which site, this assertion is belied by the following developments (and perhaps others of which Rio Blanco County is unaware):

1. According to the trade press, Deseret has given Stone & Webster Engineering, a construction firm, an $80 million contract for the electric railroad system which would link the Deserado mine to the plant site at Bonanza, Utah.*/ This contract would be entirely unnecessary if the Rangely plant site were selected. Moreover, its existence would call into question the assertion in the draft EIS that the initial cost of the electric railroad would be approximately $33 million, less than one-half the value of the contract.

2. In a document titled "Development of Energy Minerals in Northwest Colorado," issued by BLM in June 1980, there appeared the following statement:

> "Deseret Generation and Transmission Cooperative plans to develop an underground mine on federal leases held by Moon Lake Electric Association, one of the members of Deseret. Production of about 1.2 million tons per year beginning

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*/ Coal Week, Vol. 7 No. 3 (Jan. 19, 1981), at 3.

36.18 (cont.)

> in 1983 or 1984 is expected from these lands about seven miles northeast of Rangely, Colorado. The coal will be burned in a new power plant planned to be built near Bonanza, Utah." *Id.* at 18 (emphasis supplied).

3. Deseret has indicated that it plans to begin construction at the Bonanza site in May 1981. It has therefore acted as if it is certain that the final EIS will recommend and the decisionmaker will determine to locate the power plant at the Bonanza site.

4. Deseret has applied for and apparently received from Region VIII of the Environmental Protection Agency a PSD permit for the power plant at the Bonanza site. Once again, this action is designed to foreclose options of the decisionmakers and belies the statement in the draft EIS that further reviews would be undertaken before issuance of a PSD permit.

5. Air quality monitoring was performed only at sites in Utah (DEIS at 160-163), and visibility modeling was undertaken only at the Bonanza site (DEIS at 248). Aside from the fact that this action makes impossible any meaningful comparison of air quality effects at the two

36.18 (cont.) most likely sites, it also indicates that all actions have been premised on a decision to proceed with the Bonanza site.

6. In discussing the selection of possible sites, the draft EIS states that reliance was placed on recommendations of the Utah State Siting Committee (DEIS at 35). We think it self-evident that to the extent such a committee made recommendations, they were necessarily designed to eliminate consideration of a Colorado site. Thus, they clearly were intended to and probably had the effect of precluding the kind of fair-minded and open consideration of all alternatives that is contemplated both by NEPA and the implementing regulations.

7. Similarly, in discussing another rationale for placing the plant at the Bonanza site, the draft EIS accepts at face value a statement by the Utah State Engineer, solicited by the applicant in June 1980, that he would be "very reluctant" to approve Utah water for use in connection with a Colorado plant site. DEIS App. 2 at R-5, R-6. As we discuss below, the statement by the Utah State Engineer both prejudges the question which the same official

36.18 (cont.) earlier stated he could not prejudge (id. at R-7), and asserts, without any basis and indeed contrary to fact, that Utah residents would not derive any benefit from a Rangely plant site. The cited statement by the Utah State Engineer can be viewed as having only one possible purpose: limiting the choice of reasonable alternatives considered by the agencies. Securing this letter was obviously designed to prejudice the decisionmaking process.[*/]

We submit that it makes a mockery not only of the participants in the NEPA process but of the process as well to proceed in a manner which evidences such a cavalier disregard of the need fully to consider alternatives before decisions are made and of the need to disallow or prevent actions which are calculated only to ensure that a certain outcome is reached. In this regard too, the draft EIS and the process which led up to its release is seriously deficient from a legal point of view.

[*/] Moreover, the agencies' blind acceptance of the letter's assertions seems to contradict the requirement of independent analysis of interested parties' assertions, discussed infra.

III. SOCIOECONOMIC IMPACTS

Rio Blanco County's paramount concern with the proposed federal actions relates to the potential socioeconomic impacts that would result from locating the proposed power plant in Bonanza. As we describe below, a Bonanza location would result in substantial social impacts -- impacts which the draft EIS has ignored or grossly underestimated -- upon a number of Colorado communities, particularly Rangely and Dinosaur, yet the County and its communities would not have the tax base required to mitigate such impacts. As many other western communities and industries have realized in similar circumstances over the past decade, failure to address such issues prior to decision-making by the federal agencies will do a grave injustice to the impacted communities as well as to Deseret, the proponent of the project.

36.19 What is needed is a thoughtful, objective, comprehensive final environmental impact statement that accurately describes the impacts, honestly portrays the alternatives, and adequately defines the mitigation measures which must be taken by the project proponents. Such an analysis is not only required by law, see, e.g., 40 C.F.R. §§ 1502.14, 1502.15, 1502.16, but also is critical when the choices are difficult and the issues highly

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36.19 (cont.) controversial as in the present case. Rio Blanco County had hoped that DEIS would provide a full and complete analysis of the social and economic issues. Unfortunately, the DEIS fails in almost every respect either to provide the needed information or, equally importantly, to set forth a cogent analysis of the significance of the information provided.*/

As we describe below, this DEIS misses by such a wide margin with respect to the basic factual and analytical issues that we can only conclude that a rewrite of the socioeconomic portion of the DEIS should be undertaken and, if necessary, the public should have an opportunity to comment. See 40 C.F.R. § 1502.9. Otherwise, the minimum federal statutory and regulatory requirements will not be met.

In order to evaluate those sections of the DEIS that purport to address socioeconomic issues, the Rio Blanco Board of County Commissioners has retained John S. Gilmore and Diane Hammond of the Denver Research Institute. Mr. Gilmore's experience and background in analyzing socioeconomic impacts in this region is without equal. See

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*/ The areas which must be covered include sewer; water; schools; libraries; administration; parks and recreation; hospitals; ambulance service; health, mental health and social services; solid waste; public safety; detention; fire protection; shop and maintenance; streets and roads; and assisted housing.

36.20 Appendix A. We attach and incorporate in full as a part of our comments the results of Mr. Gilmore's detailed review and analysis of the DEIS. See Appendix B. We expect REA and BLM to respond in detail to the comments of Mr. Gilmore as well as to those set forth in the body of this text.

A. Population Distribution

Projections of the population distribution are of critical importance in accurately portraying the impacts that will occur in Utah and Colorado, as well as the tax dollars that will be available to mitigate those impacts. Treatment of this issue (DEIS at 275-304) is totally inadequate.

36.21 The gravity flow model used by Burns and McDonnell in predicting population distribution is highly inappropriate as applied to the Moon Lake Power Plant Project. The results are thus distorted and misleading. It is significant that the DEIS contains a description of neither the model nor the assumptions employed, despite the fact that such assumptions totally determine and skew the outcome of the population projections.

Even assuming the Burns and McDonnell model were valid (which Rio Blanco denies), it is applied incorrectly

36.21 (cont.) by using past population figures rather than projections of the population that the DEIS concedes will exist in the communities to be affected at the time the operational workers arrive. Table 4-12 (DEIS at 275) estimates a 1985 Rangely population without the project of 9,100 and a 1985 Vernal population without the project of 12,555. If these population projections had been utilized, the figures set forth in Tables 4-19 (DEIS at 282) and 4-21 (DEIS at 283) regarding work force at the Deserado Mine would be entirely different. Thus, for example, Table 4-19 reaches the conclusion that by 1986, 40 percent of the coal mine work force (and associated populations) will live in Vernal. This figure totally ignores the fact that Vernal is 55-60 miles (1 hour, 15 minutes each way) from the proposed Deserado coal mine facility, while Rangely is within 10 miles of the facility. It must therefore be premised instead on some notion of an "attraction" factor to Vernal. However, since Rangely and Vernal will be quite similar in size by 1985 (Table 4-12), the "attraction" factor to Vernal would be greatly reduced even under the Burns and McDonnell mcdel. If the agencies had undertaken the requisite objective and independent analysis, combining the diminution in the "attraction"

36.21 (cont.) factor with the distance considerations described above, they could only have concluded that it was simply inconceivable that Vernal would attract 40 percent of the coal supply-related work force. Rio Blanco County estimates that, even under the Burns and McDonnell model, no more than 15-20 percent of that population (estimated at 1200) (Table 4-19) would live in Utah.

Similarly, and again erroneously, the model uses past rather than projected population figures to gauge the population distribution of operational workers at a power plant site. Tables 4-19 and 4-21 both project that over 80 percent of the plant's operational workers would live in Vernal. If the model had used anticipated population figures for 1985 (Table 4-12), the 80 percent figure would have been significantly reduced.

36.22 We estimate that, had the model been used correctly to attempt to predict the flow of the operational work force for both the mine and the power plant, it would have demonstrated that 70 to 75 percent of the population impacts would occur in Colorado. Not only should Tables 4-19 and 4-21 be revised to reflect this, but the numbers of plant and mine workers, as well as the estimates of the secondary work force, should also be revised upwards, as we explain below.

36.23 We also note that intelligent planning by Deseret would logically require that most of the construction work force be directed to those communities that will house the operational work force. This would help to ensure that the community infrastructure would be in place prior to the arrival of the operational work force and would help to mitigate the boom-bust cycle that would be inevitable if the operational and construction workers were to live in different communities. Accordingly, every effort should be made to ensure that the construction work force will be directed to Rangely, to minimize the dislocation that could otherwise occur later.

36.24 In addition, in measuring distance from the Bonanza site to Rangely and Vernal, the DEIS inexplicably fails to describe or include the shortest and most convenient access route to Rangely. We refer to the Rio Blanco County road extending southeast from Colorado Highway 64 to the Utah border and then continuing to Bonanza. It is remarkable that this route is not included in the various access routes described in the DEIS (at 35) and is omitted from relevant maps (DEIS at 47, 67). Instead, the DEIS is quick to mention the possibility of constructing a new road from Bonanza to Vernal, even though no commitment for such a road has been received from either Deseret or the

36.24 (cont.) County (DEIS App. 11 at R-62). In the face of such obvious biases, one can only question the objectivity of the DEIS. The existence of this road, its condition and possibility of improvement, and its impact on the population distribution figures must be fully disclosed and analyzed.

36.25 As the Gilmore analysis demonstrates, the Burns and McDonnell model is defective in numerous ways. For example, no credit is given in the model for existing surplus capacity in the Town of Rangely (sewer, water, school system, etc.) in spite of the obvious attraction that such services would provide to workers at the Deserado coal mine or at the power plant. This failure is particularly egregious when one compares Rangely's favorable position vis-a-vis Vernal with respect to excess capacity in its services.

Nor does the model discuss or recognize the relative abilities of the two communities to provide in the requisite time period the additional amenities that will be required by the anticipated work force. The ability of a community to provide amenities rapidly in anticipation of major growth is a crucial factor that must be considered in the EIS and by the decisionmakers.

36.26 We must also underscore Mr. Gilmore's observations on the number of local workers available for the project. (See p. 7 et seq. of his attached comments.) Once again, we feel the DEIS has been skewed to exaggerate the number of workers likely to be attracted to Utah.

B. Cost Estimates

36.27 A major deficiency in the DEIS is its failure adequately and accurately to disclose the socioeconomic costs of the project and the distribution of those costs among the affected communities within Utah and Colorado.*/ We fail to see how REA and BLM can fulfill their obligation to consider and implement mitigation measures without even undertaking an analysis of the costs to the various communities and counties involved in construction of the proposed project.

36.28 Moreover, BLM and REA have grossly understated the level of the costs associated with community infrastructure development and operation and maintenance activities. The DEIS states that $725-$1,005 per person

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*/ Since municipalities such as Rangely will incur a substantial portion of such costs, it is particularly regretable that the DEIS only comments on estimated per capita county costs. See DEIS at 281.

36.28 (cont.) will cover the costs of all capital services and operation and maintenance to be incurred by the local governments. DEIS at 281. This estimate is lamentably inaccurate. A recent Colorado state government analysis of required energy community expenditures puts this figure at $10,800 per capita for capital expenditures and $1,020 per capita for annual operation and maintenance costs. *See* *Fourth Annual Report to the Colorado State Legislature, 1981, Summary and Status Report to Mineral Lease and Severance Tax Fund* (prepared by the Division of Impact Assistance and submitted by the Department of Local Affairs) (January, 1981), at 30, 44. The Colorado state figures are average; according to Colorado Department of Local Affairs officials, other non-governmental studies indicate that even higher capital and operational/maintenance costs can be expected. The various cost tables in Chapter 4 of the DEIS cannot withstand scrutiny. Consequently, they must be revised to disclose the real costs of development.*/

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*/ The Rio Blanco Board of County Commissioners has previously provided BLM with annual operational and maintenance cost estimates of approximately $1,000 per person. The current, temporary excess capacity in Rangely's system has come from the expenditure of Oil Shale Trust Fund and other oil shale-related moneys to prepare the community for forthcoming synthetic fuel development. Although workers employed by Deseret could expect to utilize

(Footnote continued on following page.)

C. Revenue Projections

Another respect in which the DEIS is seriously inadequate is its treatment of projected tax revenues. The DEIS fails to provide a breakdown of anticipated tax revenues to be generated by the various affected counties, towns, and the state. Without such a breakdown, it is impossible to know what specific revenues are available to mitigate what specific impacts.

36.29 The revenue projections set forth in Tables 4-20 (DEIS at 283), 4-22 (DEIS at 285), 4-32 (DEIS at 295), and 4-34 (DEIS at 297) do not contain sufficient documentation to allow the reader to determine their accuracy. Each of these tables should be accompanied by a description of the cost of the total system (power plant, coal mine, transportation system, and related facilities), a description of the percentage of each component which is allocated to each political jurisdiction, and a description of the revenue produced from Deseret and Colorado customers (since revenue is one basis for determining property tax).

(Footnote continued from previous page.)

a portion of these facilities between 1981-1985, oil shale workers will increase in numbers, necessitating an expansion of existing facilities. Clearly, Deseret should be required to reimburse the County and Rangely for those services that it will utilize.

36.29 (cont.) There is yet another serious inaccuracy in the DEIS treatment of revenues. At several points (*see* DEIS at 14, 281, 292), the authors assume that substantial coal severance tax revenues from the Deserado mine will be available to the County and Rangely. Unfortunately, that is not the case. As would have been apparent had the agencies conducted the searching independent inquiry required in these circumstances (*see* *e.g.*, *Miller* v. *United States*, 492 F. Supp. 956 (E.D. Ark. 1980)), Colorado's severance tax revenues, after fiscal year 1981, will be distributed in the following fashion: 50 percent to the State Severance Tax Trust Fund, and 50 percent to the Local Government Severance Tax Fund.

Funds which are part of the State Severance Tax Trust Fund are only available for development and conservation of the state's water resources (with interest accruing to the state's general fund). Funds which are part of the Local Government Severance Tax Fund are distributed by the Department of Local Affairs. By statute, only 15 percent of this local fund (itself consisting of only 50 percent of total severance tax revenues) is returned directly to counties or municipalities on the basis of the proportion of mine employees residing in the area. The remaining 85 percent of this local fund is distributed statewide, at the discretion of the Department of Local Affairs, to various political subdivisions impacted by the development, extraction, or processing of minerals subject to the severance tax. There is no guarantee that any of this 85 percent of the Local Government Severance Tax Fund would be returned to either Rio Blanco County or Rangely. Thus, a mere fraction of the $472,000 severance tax revenues mentioned in the DEIS (at 281) would be directly available to the County or to Rangely.

36.29 (cont.)

36.30 We also wish to stress, in contrast to the comments of the DEIS (at 14), that the town of Rangely has no tax base associated with the Deserado Mine.

36.31 Lastly, revenue evaluations in the DEIS fail to analyze the extent to which other taxes may be of assistance to counties or towns to mitigate social impacts. The DEIS is silent on the extent to which personal property taxes and sales taxes might offset, in part, the operational costs facing local jurisdictions. Without this information, it is impossible to assess the nature and extent of the mitigation measures which will be required. Such information must be provided in the final EIS.

D. *Lack of Mitigation Plan*

36.32 As mentioned earlier, the DEIS fails to provide a comprehensive and adequate socioeconomic mitigation plan to remedy the taxing inequities that would result to jurisdictions in the other state from location of the power plant (in either Colorado or Utah). Such a mitigation plan is at the heart of the NEPA process and its absence renders the DEIS gravely deficient.

1. *Legal Requirements*

As noted earlier, section 1502.14 of the NEPA implementing regulations, which both BLM and REA have conceded to be applicable (*see* 46 Fed. Reg. 7492 (Jan. 23, 1981) (BLM); 45 Fed. Reg. 27,541 (Apr. 23, 1980) (Department of the Interior); 45 Fed. Reg. 6,592 (Jan. 29, 1980) (REA)), provides that:

> "Based on the information and analysis presented in the sections on the Affected Environment (§ 1502.15) and the Environmental Consequences (§ 1502.16), [the EIS] should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and *providing a clear basis for choice among options by the decisionmaker and the public*. In this section agencies shall:
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> * * *
>
> "(f) *Include appropriate mitigation measures not already included in the proposed action or alternatives*." (Emphasis supplied.)

Similarly, section 1502.16 requires that an EIS include discussions of direct effects and their significance, indirect effects and their significance and of mitigation measures to alleviate those impacts. 40 C.F.R. § 1502.16. "Effects" and "impacts" are defined in section 1508.8 to include:

> "growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.
>
> "Effects and impacts as used in these regulations are synonymous. Effects includes ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, *cultural, economic, social, or health, whether direct, indirect, or cumulative*." *40 C.F.R. § 1508.8 (emphasis supplied).*

And section 1505.3 provides in the following terms for implementing measures designed to mitigate the effects and impacts required to be discussed by sections 1502.14 and 1502.16:

> "Mitigation (§ 1505.2(c)) and other conditions established in the environmental impact statement or during its review and committed as part of the decision shall be implemented by the lead agency or other appropriate consenting agency. The lead agency shall:
>
> "(a) *Include appropriate conditions in grants, permits or other approvals*.

> "(b) Condition funding of actions on mitigation.
>
> "(c) Upon request, inform cooperating or commenting agencies on progress in carrying out mitigation measures which they have proposed and which were adopted by the agency making the decision." 40 C.F.R. § 1505.3 (subparagraph (d) omitted) (emphasis supplied).

Inclusion in the EIS of an adequate mitigation plan, implemented by appropriate binding conditions in the proposed rights-of-way and loan guarantee, is necessary to assure compliance with NEPA and its implementing regulations, and would also enable BLM to comply with its own Memorandum of Understanding with Rio Blanco County (*see* Appendix C). This unique document, signed in 1977 by Colorado BLM State Director Dale Andrus and the Rio Blanco County Commissioners, expressly provides that BLM will:

> "Cooperate with the County in mitigating the socioeconomic impacts of land use activity on federal lands and with regard to federal mineral rights."

A more detailed analysis of the authority and responsibility of BLM and REA to provide for socioeconomic impact mitigation is provided in Section V below.

2. Inadequacy of Proposed Mitigation Measures

36.33 The "mitigation measures" proposed by Deseret in Appendix 11 as those which it "may" support cannot qualify in any respect under the relevant regulations. The "plan" is so weak and so inadequate that the reviewer can assume that no significant mitigation will occur. By virtue of this plan, Deseret agrees to do nothing. We are relieved to know that even the authors of the DEIS recognize this fact. DEIS at 115. Without a concrete and substantial mitigation plan, the decisionmakers cannot know what steps can be taken to address impacts associated with each of the alternatives. Nor can the decisionmakers know what impacts are avoidable so that they can decide which alternative is preferable.

36.33 (cont.)

The mitigation plan must be premised upon accurate, reliable costs and revenues for each of the affected counties and towns. It must assess fully and objectively the anticipated front-end financing problems. It must analyze tax-sharing possibilities, or in lieu thereof, mandatory measures that Deseret will take to alleviate anticipated socioeconomic problems. It must outline specific binding steps for Deseret to take (with approximate timetables) and provide a legal mechanism to insure that these steps will be taken. Such a mitigation plan must be incorporated in the federal agencies' grants of required federal rights-of-way, permits, licenses, and loan guarantees.

E. Conclusion

In view of the deficiencies catalogued above and detailed in the attached comments of Mr. Gilmore, the agencies have no recourse other than to rewrite the socioeconomic portions of the DEIS and to allow the public an opportunity to comment on the revised DEIS before a final is prepared. BLM and REA must indepen-
36.34 dently analyze and revise the baseline data to remove the errors and misstatements, modify the assumptions used, and prepare a meaningful mitigation plan for each of the alternatives. Only if this is done is there any chance the decisionmakers will be able to make an informed decision.

IV. ANALYSIS OF ALTERNATIVES

Socioeconomic issues aside, there are other important reasons for locating the plant at Rangely. As we discuss below, the Rangely alternative is both environmentally and economically preferable. Comparisons between the Rangely and Bonanza locations center not only on socioeconomic considerations but also on water, air, and economic factors. The following analysis states our concerns and positions on these issues.

A. Water

REA's professed reason for preferring the Bonanza site is that the Rangely site cannot provide Deseret with a reliable water supply within the development timetables proposed by Deseret. DEIS at 128. Since REA places such emphasis on this issue, we believe the mat-
36.35 ter deserves careful scrutiny.

At the outset, we note that BLM reaches a contrary conclusion. The DEIS states that BLM finds the Rangely site viable. DEIS at 124. For a site to be viable, a firm, reliable, and dependable water supply must be available. Moreover, the water supply must be

36.35 (cont.) available when the applicant needs it. The DEIS confirms discussions with numerous BLM officials over the past year in which they have indicated that there is no water issue or problem associated with the Rangely site.

It is understandable that REA's Washington-based staff lacks familiarity with western water issues. But it is surprising that REA has not deferred to the BLM's conclusions in this matter, inasmuch as BLM must deal with western water issues on a far more regular and intensive basis than REA.*/

1. Water Availability

The DEIS imparts no information as to how REA reached its conclusion that the Rangely site lacks a dependable and timely water supply or the reason(s) why its opinion differs from BLM's. The water discussion (DEIS at 12-13, 78-87, 138) is general and superficial. It does not give the reader the necessary step-by-step

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*/ Rio Blanco's concerns are compounded by the fact that REA has apparently not had the benefit of consultation with the one federal agency that claims expertise in western water issues -- the Water and Power Resources Service. For an agency (which lacks expertise in water matters) not to seek the opinion of the federal government's own experts on the so-called paramount issue in this DEIS, strikes us as unbelievable. CEQ's regulations mandate such consultation. See 40 C.F.R. §§ 1501.6, 1501.7.

36.35 (cont.) analysis. For example, the reader cannot assess the availability of water at the Rangely site without projecting the historic flow of the White River, determining the number of existing absolute decrees within Colorado, ascertaining the number of senior conditional decrees that would be developed during the life of the Deseret project (based on realistic upstream levels of development), calculating return flows, and considering a variety of other factors. The DEIS is totally silent on REA's assessment of these factors. No numbers are provided. REA references a number of studies but does not tell the reader which studies or figures it believes, nor the reasons for preferring one analysis over another. As a matter of law, the final EIS must contain this information. Without it, REA's analysis is inadequate to support its conclusions.

Prior to the drafting of the DEIS, voluminous materials were sent to REA, BLM, and Deseret regarding availability of water from the White River. The Director of the Colorado Water Conservation Board, the Colorado State Engineer, the Colorado River Water Conservation District, numerous consultants, and others have all concluded that Deseret can be assured of a

36.35 (cont.) reliable water supply from the White River at the Rangely project. Many of these reviews, in an effort to portray extreme case situations, have projected upstream development far beyond what will actually take place. Each of these studies has assumed, despite the fact that there is no legal basis for such, minimum flows at the Colorado-Utah state line. Dry years such as 1977-78 have been factored into these analyses. In each instance, the experts have concluded that the Rangely site has a firm, reliable, timely water supply.

We stress that this water rights issue involves a Colorado water right. The most reliable authorities with respect to this issue are those agencies in Colorado which will regulate and administer this water right. What better assurances of water availability can Deseret -- or REA -- need than assurances from the very agencies administering such rights.

The Deseret/REA position may result from a lack of understanding about Colorado's water rights system and the way in which senior absolute or conditional rights work. Some of the most obvious misunderstandings have occurred in the following areas:

First, upstream irrigation rights operate for between 4 to 6 months of each year, depending on the

location of the right in the basin, not 12 months of each and every year, as Deseret has assumed.

Second, all senior rights are not 100 percent consumptive. Water used for irrigation rarely consumes more than 40-50 percent, with the unconsumed portion returning to the river. Domestic and power uses consume almost no water. As the Colorado State Engineer notes:

> "The Rangely Project is located near the stateline, thus, it will benefit from return flows of senior upstream water rights. More importantly, it cannot be significantly curtailed by calls from downstream senior water rights since few water rights exist between the project and the stateline. If the project were located near the headwaters of the White River Basin, the yield would be considerably less due to smaller flows being available and more senior water rights downstream." Letter from Jeris A. Danielson, State Engineer, to Greg Graff, Environmental Coordinator (BLM), dated March 31, 1980.

Third, certain upstream senior water rights conflict with each other because reservoir sites lie in the same approximate location or will compete for the same water. When such situations exist, one or more water rights may not be developed.

As we mention above, a number of these studies have employed assumptions about upstream development which are grossly exaggerated. Even then, such studies conclude that Deseret would have sufficient water at a Rangely site. For example, the Western Engineers' September 1979 study allocates 30,000 acre feet to coal gasification. We know of no planned coal gasification projects in the upper basin of the White River. The David Fleming 1975 study projects 140,000 acre feet of water developed for oil shale with upstream senior conditional decrees. Yet the two Colorado federal oil shale lessees are actively considering using ground water resources from Piceance Basin.*/ We also note that modified in-situ technologies, to the extent they are used in the Piceance Creek Basin, would use considerably less water. These and other assumptions that were used in these studies were designed to give a "worst case" development scenario which we doubt would occur during the life of the Deseret project. Nevertheless, even in the "worst case," Deseret would still receive an ample supply of water.

The studies also provide for substantial by-passes of water subsequently available to Utah (an average annual flow of 225,000 acre feet). _See_ Fleming, 1979. We

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*/ The DEIS touches briefly on direct ground water supplies for the Rangely plant. Yet it is surprising that the DEIS fails to assess upstream ground water resources that could reduce downstream competition for water rights.

should note that Colorado has no legal obligation to deliver any set amount of water from the White River to Utah, since Utah elected to take delivery of its compact share at the Maybell gauge on the Yampa River. Nor is Colorado responsible for meeting whatever water rights are ultimately awarded to the Ute Indian tribe (which will be charged against Utah's compact entitlements).*/ We note that Utah could fulfill whatever obligations it may have to the Ute tribe with Green River water. In any event, the average annual flow of 225,000 acre feet to Utah should more than meet any reasonably foreseeable needs within the State of Utah. The DEIS offers no evidence to the contrary.

36.36 The DEIS should recognize that even in the worst year of record, the yield from Taylor Gulch Reservoir would have been 35,000 acre feet. Deseret could obtain the first 20,000 acre feet of this water.

2. Timeliness of Water Availability

The issue of timeliness of the water supply at the Rangely site also deserves comment. As the DEIS

36.37 */ It is most unusual that the DEIS discusses a possible obligation of an upstream state to an Indian tribe in a downstream state. In our review of past environmental impact statements regarding Colorado water projects, no such inference has been made.

correctly notes (at 183), a feasibility and preliminary engineering study of the Taylor Draw Reservoir project has been completed. Funding for the project has been addressed through a $13 million bond issue approved by the residents of the area in August 1980. Applications for the requisite permit approvals have been filed with BLM and the U.S. Army Corps of Engineers. A preliminary environmental assessment has been prepared. The federal government should be able to complete the environmental reviews required by NEPA, including Fish and Wildlife Service endangered species studies, by the end of 1981. Shortly thereafter, the federal agencies would be in a position to take final action on outstanding permit
36.38 applications. Project engineers have advised that final engineering designs will be completed by the fall of 1981.

With a construction start in the spring of 1982, and conservatively allowing a two-year construction period, the Taylor Draw Reservoir would be on-line before the end of 1984. This construction schedule will meet the needs of Unit 1 of the power plant.

If Deseret elects to test or operate Unit 1 prior to completion of Taylor Draw, there is no reason why temporary arrangements could not be made to pump water

directly from the White River. As the Hansen 1980 study indicates, without a reservoir but with a two-week onsite storage capacity, adequate water would be available in 99 out of 100 years using Deseret's 6 cfs water right and Rangely's 16 cfs right. Since a direct pumping program would be available until the Taylor Draw Reservoir is on line, the risk of insufficient water during the limited start-up period is very remote.

Currently, only 35,000 acre feet are being consumed on an average annual basis on the White River in Colorado (out of a total average annual virgin flow of approximately 550,000 acre feet). Although someday (perhaps in the next century) much of this water may be diverted and consumed, this will not happen during the 1980s and will not affect the start-up of the Moon Lake project. Even if the "one in a 100 year" situation were to occur by some terrible fate during 1984 or 1985, Deseret could easily arrange for either upstream senior irrigation rights temporarily to bypass water diversions or temporary releases from upstream reservoirs (e.g., the Johnny Johnson Reservoir).

Although the DEIS raises sedimentation issues in connection with the discussion of Taylor Draw (DEIS at 83-84), sedimentation is not expected to be a problem

at the reservoir for at least the next 30 years. REA
bases part of its sedimentation concerns on a study by
Vaughn E. Hansen. Unfortunately, the Hansen sedimenta-
tion figures (DEIS at 83, 85) erroneously use undepleted
36.39 flows as the basis for determining sedimentation. The
long-term plan for the Rangely site is to add the Wolf
Creek Reservoir upstream. This addition would resolve
any sedimentation issue as well as provide a timely and
sufficient water supply for Unit 2 of the power plant.

Any reasonable reviewer should be satisfied with
the Rangely White River water supply. But if all else
fails and Deseret still insists on using Green River
water, Deseret could construct a pipeline from Walker
Hollow to the Rangely plant. This option would be in-
finitely cheaper than building a railroad to move coal
from the Deserado mine to Bonanza. One can only marvel
at the arguments preferred by Utah State Engineer Dee C.
Hansen in opposing this idea. (See Appendix 2 of the
36.40 DEIS.) Apparently Mr. Hansen has concluded that the
citizens of Utah would not benefit from the Deseret
project if the Rangely site were chosen. Perhaps no
one explained to Mr. Hansen where the electricity will

36.40 (cont.) go. He should be referred to Chapter 1 of the DEIS in which the purpose and need of the project is stated. Table 1-1 (DEIS at 16) and Figure 1-1 (DEIS at 17) describe 24,945 existing customers of Deseret who will benefit from this project, the majority being citizens of the State of Utah. Therefore, REA and BLM should not rule out the possibility of transferring Green River water to Rangely. But we continue to believe that the Rangely White River alternative will give Deseret everything it requires.

3. Use of Green River Water for Bonanza Site

As the DEIS overstates problems with the use of White River water for the Rangely site, so it understates problems with use of Green River water for the Bonanza site.

First, as the DEIS discloses (DEIS at 180), there
are endangered species inhabiting the Green River, in-
cluding the Colorado squawfish, humpback chub and bony-
36.41 tail chub. What the DEIS does not disclose is that En-
dangered Species Act considerations are much more impor-
tant in connection with the Green River alternative than
with the White River alternative, since the Green River

36.41 (cont.) habitat is more important to these species than the White River habitat. Thus, the description and analysis of environmental impacts of Green River alternative must be revised. There is underway a U.S. Fish and Wildlife study of the habitat of these species which is not scheduled to be completed until 1982. If endangered species considerations are sufficiently compelling to delay commencement of construction on the Rangely Reservoir, as Deseret argues, for similar reasons, the same delays would apply to the Green River site.*/

36.42 Second, treatment of the endangered species question in the DEIS is completely misleading. The DEIS provides as follows:

> "As an alternative to withdrawing their 30 cfs Utah water right from the Green River and depleting the river flow, Deseret could purchase water directly out of Flaming Gorge Reservoir from the Water and Power Resources Service. The water from Flaming Gorge could be released into the Green River and then pumped from Walker Hollow to the plant site." DEIS at 80.

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*/ It is Rio Blanco's position that Endangered Species Act considerations should not be invoked to delay either the Rangely Reservoir project (Taylor Draw and Wolf Creek) or projects on the Green River. The point is that, if they are to be invoked at all, they must be invoked even-handedly.

36.42 (cont.) The DEIS provides elsewhere that the "preferred" water alternative is:

> "Use of the Green River water with purchase of Flaming Gorge storage water by Deseret and appropriate releases by the Water and Power Resources Service to avoid jeopardy impacts to endangered fish species in the Green River."
> DEIS at 125.

Finally, the DEIS concludes:

> "As indicated by the U.S. Fish and Wildlife Service (USFWS), withdrawals of water from the Green or White Rivers for this project is likely to jeopardize the continued existence of three endangered fish species in the Colorado River system. However, if water were purchased from Flaming Gorge, thus replacing water withdrawn from the Green River for the Moon Lake Project, the endangered fishes would not be affected."
> DEIS at 5.

This conclusion is completely erroneous. Purchase of water from Flaming Gorge would not reduce net depletion of the Green River below the Walker Hollow diversion. Purchase of water from Flaming Gorge would merely represent a paper transaction for the purchase of water which would otherwise have to be released from the Reservoir and would involve at most a reregulation of flow in that River. Such a transaction cannot "make water." In order for such a solution to eliminate risk of impacts on endangered species, water would have to be purchased from a different river system.

Moreover, it is not certain that Flaming Gorge water is available. It is represented in the DEIS that the Water and Power Resources Service has given "initial indication that water is available" for purchase and that Deseret filed an application on July 11, 1980 for purchase of up to 30 cfs. DEIS at 80. However, there is no indication in the DEIS that Deseret's application has been granted nor that WPRS has done any environmental analysis, or proposed a draft EIS, on this transaction. 36.43 Thus the availability of such water remains speculative.

Even if "additional" water were to be released from Flaming Gorge (which, as noted above, does not appear to be practical) it would risk significant alteration of the endangered species habitat on the stretch of the Green River from the dam to Walker Hollow. Under present Fish and Wildlife Service policy, this could not be lawfully undertaken under the Endangered Species Act until completion of the U.S. Fish and Wildlife Service study on endangered species referred to above.

B. Air Quality Issues

The draft EIS fails to include a detailed analysis of the comparative impact on air quality of locating the facility in Bonanza or Rangely. Thus, the clear mandate of 40 C.F.R. § 1502.14 -- that alternatives be considered on a comparative basis -- is no more met with regard to air quality considerations than with regard to other matters. Accordingly, it is impossible to make an objective decision as to the more advantageous siting of the power plant from the standpoint of air quality. 36.44 This section of the draft EIS needs to be completely restudied based on adequate data that would allow a comparative analysis.

The draft EIS itself demonstrates that there may be substantial differences in air quality impacts between the two sites under consideration by Deseret. For example, Table 4-1 (DEIS at 241) demonstrates that estimated sulfur dioxide emissions from the Bonanza site would be over 365 tons per year more than from the Rangely site. This is apparently premised on an assumption that 93.6 percent sulfur dioxide control would be required at the Bonanza site while 94.9 percent control would be required at the Rangely site, to satisfy Colorado Category I increments. This assumption in turn seems to be based on a model which is conceded to be unrepresentative of prevailing conditions and which does not take into account the comparative effects at the two sites of 95 percent control of sulfur dioxide emissions, a level of control which the applicant considers achievable. See 36.45 DEIS App. 1 at R-3. In addition, nowhere in the draft EIS is there any consideration of the comparative effects of requiring the applicant only to achieve a 90 percent control of emissions, the figure used in the conditional PSD permit apparently already issued for the Bonanza site.*/ Thus, the draft EIS completely fails to consider how potential differences in emissions or air quality impacts might play a role in the necessary determination that one site is preferable to the other from the standpoint of environmental impacts.

This failure may be traced at least in part to the 36.46 fact that the draft EIS does not contain adequate data for making necessary comparisons. Not only are necessary monitoring data missing (see, e.g., DEIS Table 3-1 at 162) or inconsistent (compare, e.g., nitrogen dioxide levels

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36.45 (cont.) */ This raises an additional question: Why would and how could EPA issue a permit which requires a lesser degree of control of emissions than that conceded by the applicant to be achievable and therefore required?

36.46 (cont.) in DEIS Table 3-1 at 162 with nitrogen dioxide levels in DEIS Table 4-4 at 245), but the draft EIS also embodies two additional fatal flaws with respect to its analysis: It is based entirely on a modeling scheme that does not accurately reflect the air quality conditions in the area, and it draws conclusions as to air quality impacts from both sites based on baseline data collected only in the vicinity of the Bonanza site.*/

36.47 The draft EIS essentially admits that the modeling used to arrive at the conclusions reached does not reflect accurately the air conditions at the sites under consideration. The data that underlie virtually the entire discussion of air quality impacts were collected either at the Ua or Ub oil shale sites in Utah or at Vernal, near the Bonanza site, in Utah. There is no indication that such data are at all useful for analyzing ambient impacts at the Rangely site, in neighboring Colorado, which has entirely different climatic conditions. First, the Bonanza site is located on a flat area, whereas Rangely is located on a more rolling

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36.46 (cont.) */ Nor is there any indication in the DEIS that air quality monitoring was conducted for the requisite period of time.

topography. Second, the wind conditions in the region are such that the plume from the Bonanza site would take a very different course, vis-a-vis the Dinosaur National Park, than the plume from the Rangely site. Both of these key differences are recognized in the draft EIS but ignored for purposes of environmental impact analysis. See DEIS at 163. Indeed, the draft EIS only acknowledges in passing that the data collected near the Bonanza site -- the only data used for purposes of the analysis in the EIS -- would not be truly representative of plume level winds near the Rangely site. DEIS at 163.

The draft EIS recognizes, as it must, given the relative locations of the Bonanza and Rangely plant sites, that the wind directions needed to transport the plume from a Rangely plant site to Dinosaur are considerably different from directions required to transport plumes from Bonanza to Dinosaur. The draft EIS also recognizes that "winds infrequently blow from the
Rangely site towards Dinosaur." DEIS at 249. Under
these circumstances, there can be no justification for
36.48 utilizing a single set of modeling data -- those for
Bonanza -- to analyze the relative impacts on visibility
or other air quality considerations of the two plant

36.48 (cont.) sites under consideration. Moreover, and more importantly, there can be and indeed is no justification for the assertion that the predicted intensity of impact at Dinosaur would be about equal for Rangely and Bonanza. DEIS at 248. Had adequate data and modeling been used, the only possible conclusion concerning relative impacts from the two sites would have been that such impacts would be substantially less if the facility were sited at Rangely.

Similarly inadequate analysis was performed with
respect to the background levels used for purposes of
determining the maximum ground level concentrations pro-
duced by a generating station at the two sites. The
draft EIS recognizes that the background levels for pur-
poses of both sites were measured solely in Utah. See
DEIS at 244. Yet those background levels are applied
36.49 for purposes of the analysis presented in Table 4-4 at
245 as if they were equally applicable to the two dif-
ferent sites. Accordingly, because the draft EIS uses
only one set of background concentrations, it fails to
make an accurate comparison of the ground level concen-
trations at the two different sites. Nowhere in the
draft EIS is the failure to use accurate data better
demonstrated than in the discussion of the consumption

of increments of sulfur dioxide and particulates by the new facility. Using data collected solely from Ua and Ub oil shale tracts five miles south of Bonanza, the draft EIS extrapolates conclusions with respect to both Bonanza and Rangely, even though no data was collected from any Colorado site.

36.50 In addition, the draft EIS contains no discussion of the relative impact of locating the facility at one or the other site with respect to the future consumption of available increments for sulfur dioxide and particulates. Colorado Health Department officials have indicated that they do not anticipate air quality problems to be associated with a Colorado plant site. It may very well be the case that the siting of the facility in Utah would raise more difficult problems of future development than would siting the plant at Rangely.

36.51 It is certainly the case that siting the facility in Utah raises the special and unique problem of the consumption of Colorado increments without any corresponding economic or other benefit to the citizens of that state. This question of interstate pollution control must be analyzed in depth in the EIS before any objective decision can be made.

C. Economic Issues

As pointed out elsewhere in these comments, the DEIS is seriously deficient in its analysis of the relative costs and benefits of the two plant sites under serious consideration, relying instead on unsupported allegations from interested parties as to the need for and desirability of locating the project at the Bonanza site. In addition, it simply does not consider the economic and other justification issues raised, apparently deferring to Deseret's unilateral and interested determination that the Moon Lake Power Project should proceed as expeditiously as possible, notwithstanding alternative possibilities.

We recognize that where, as here, "there are important qualitative considerations," (40 C.F.R. § 1502.23), the weighing of the merits and drawbacks of various alternatives should not be exclusively a question of economic considerations. Still, since the need for the power plant seems to be justified largley in terms of the costs that might be incurred by Deseret's customers if the power plant were not built (see, e.g., DEIS at 8, App. 4, at

R-45), it is both appropriate and necessary to consider the economics of the project's construction and operation.

In discussing these economic issues, we begin from the premise that:

> "A heterogeneous energy generating system with an associated transmission network would be more extensive, complex, and interconnected . . . and as such would have increased efficiency losses and failures. The costs of such a system would be greater, both in capital and operating costs and in more subtle efficiency and availability penalty costs." DEIS at 107-108.

36.52 It is a reflection of the draft EIS' failed analysis that the quoted statement is used to describe a combination of "different energy technologies" (*id.*); but, even though equally applicable, is not used to comment upon the applicant-proposed alternative -- siting a generating plant some 35 miles from the mine site when a mine-mouth plant alternative (the Rangely site) is equally available.

36.53 Instead, as noted earlier, there is no economic analysis whatsoever in the draft EIS. Table D in Appendix 20 (DEIS at R-139) contains some figures generated by Burns and McDonnell, but they are neither presented in a coherent manner nor independently analyzed. Still, even

if one accepts the figures cited,[*/] it is clear that for the first unit alone, a Rangely site would, in capital costs alone, cost some $40 million less than a Bonanza site.[**/] Similarly, using the same configuration, *see* note, and exclusive of plant operation costs (not cited in the DEIS), operating costs for a Rangely plant site would be more than 50 percent less than comparable costs for a Bonanza site. These savings would obviously be enhanced with the additon of the second unit.

With regard to "energy costs," *i.e.*, losses associated with each of the potential sites, Appendix 20 concludes that:

> "[T]he Rangely plant site would save approximately 190 to 300 x 10^9 Btu/yr in external energy and material inputs;

36.54 */ They are subject to some doubt since, for example, as reported in the trade press, the electric railroad linking a Bonanza site to the Deserado mine would cost $80 million, not the $33 million cited in Appendix 20, at R-139.

**/ This figure is the difference between the totals arrived at for the Bonanza site, using the plant construction, electric railroad and Green River water source figures in Table D (at R-139), and for the Rangely site, using the plant construction, conveyor and either Taylor Draw or Wolf Creek water source figures.

> however, transmission losses from the Bonanza site would be less (303.5 x 10^9 versus 393.0 x 10^9 Btu/yr). Thus the net electrical energy deliverable from the substations would be 89.5 x 10^9 Btu/yr more if the Bonanza plant site were utilized." DEIS App. 20 at R-136.

36.55 Accordingly, even if transmission losses were greater from the Rangely site -- a question we address below, the Rangely site would, in addition to its other advantages, save between 100.5 x 10^9 and 210.5 x 10^9 Btu per year, a figure that is conspicuously absent from the DEIS. Moreover, the figure cited as representing increased transmission losses associated with a Rangely site seems to be premised on an assumption that the electrical energy will be delivered to locations which are closer to Bonanza than to Rangely. It does not consider the energy savings that would seem to be associated with "wheeling" power to Deseret's customers in northern and western Utah, an arrangement which might be preferable from an environmental standpoint (DEIS at 103) and which might lessen or eliminate the cited transmission loss figures. Nor does it consider the fact that much of the power generated by the Moon Lake project could end up being sold to oil shale

36.55 (cont.) projects (DEIS at 35) in Colorado or to other utilities, such as Public Service Company of Colorado (see DEIS App. 8 at R-44). See also DEIS at 89 ("actual terminus for the unit 2 transmission system could change, depending upon the power needs at the time . . ."). That these are not speculative, but instead likely, outcomes can be demonstrated by an analysis of the power demand figures cited in the draft EIS.

First, if one accepts the electrical demand figures in the draft EIS, and only Unit 1 were built, Deseret would have excess capacity until 1994. See DEIS Table 1-5 at 21. This excess presumably would be sold to oil shale plant operators and interested utilities such as Public Service Company of Colorado.

Second, if Unit 2 were built within 18 months of Unit 1's construction (see DEIS at 34; Conditional PSD Permit issued by EPA Region VIII in February 1981), Deseret's excess capacity would be even greater, and there would be a concomitantly greater likelihood that excess power would be sold to purchasers who would be as close or closer to a Rangely site than to a Bonanza site.

36.56 Third, there are serious questions with regard to the demand growth figures supplied by Deseret and Burns and McDonnell. They seem to be outdated,*/ and accordingly fail to reflect changes in energy demand trends caused by increasing prices and national energy policy. Thus, Table 1-6 (DEIS at 22) assumes, at the residential consumer level, a 50 percent per capita increase in consumption between 1977 and 1992. The same table assumes a doubling in per capita use by large commercial customers. In light of the increasing costs of electrical energy and increased reliance on conservation and alternative sources of power, these figures seem less than entirely reliable.

36.57 The figures for overall demand increases are similarly suspect. Table 1-3 (DEIS at 19) forecasts an annual demand growth rate of 10.5 percent between 1977 and 1982, 7 percent between 1982 and 1987, and 4.1 percent between 1987 and 1992. On the other hand, the Western Systems Coordinating Council's data for the Northwest Power Pool Area (which includes Deseret's service area as

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36.56 (cont.) */ The Power Requirement Study completed in 1978 (DEIS at 1) was revised in 1980, but the figures in the draft EIS are from the 1978 version.

36.57 (cont.) well as additional areas) not only indicates that in 1979, demand was under forecast in ten of twelve months, but also forecasts year-to-year growth in the 1982-1987 time frame of anywhere from 5.5 percent (1982-1983 winter peak growth from prior year) to 3.5 percent (1987 summer peak growth from prior year).*/ Similarly, a July 1980 study by the Department of Energy forecasts that, between 1980 and 1985, winter peak demand in the Northwest Power Pool Area will grow at 4.4 percent annually and that, between 1985 and 1989, average annual peak demand will grow at a 2.8 percent annual rate. Electric Power Supply and Demand for the Contiguous United States, 1980-1989 (United States Department of Energy Economic Regulatory Administration, Division of Power Supply and Reliability) (July 1980), at XI.9.26. And Utah Power & Light Company has, in proceedings before the Utah Public Service Commission, forecasted that annual peak demand growth in Utah will over the next four years drop from 7.4 percent (1981-1982) to 4.0 percent (1984-1985).

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*/ All these figures are under adverse hydro conditions.

Fourth, and aside from the uncertainties stemming from perhaps overstated demand projections, there has to be some doubt about the necessity for increased generating capacity, at least within the time frame suggested by Deseret. In this regard, one has to wonder about the seriousness of the Utah Public Service Commission stipulation order terminating resale power contracts entered into by Utah Power & Light Company, especially since recent figures obtained from that company indicate that in the most relevant period, it will have considerable excess generating capacity. Apparently, the stipulation and order did not, contrary to the implication in the DEIS, preclude Utah Power & Light from all sales of power, but only from resale power contracts which did not require purchasers to participate in the cost of new generating capacity.*/

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*/ In this regard, we note that the Deseret memorandum reproduced in DEIS Appendix 8, at R-44 to R-46, states that Utah Power & Light will be short power after the termination of the ICPA and Moon Lake contracts and that Utah Power & Light "desire[d] to negotiate immediately for any surplus from the Moon Lake Project." DEIS App. 8 at R-46. This statement is belied not only by the figures we have received from Utah Power & Light, but more importantly, by the letter reprinted in DEIS Appendix 8, at R-47. Significantly, that letter nowhere asserts that [Footnote continued]

36.59 Moreover, nowhere in the draft EIS is there any consideration of all the other generating facilities that will be coming on-stream in the relevant period beyond 1985. These plants, including Wellington No. 1, White Pine No. 1, and the Intermountain Power Project, might certainly affect the long-range economics of the Moon Lake project and particularly Unit 2. Therefore, the DEIS should have analyzed these developments and is seriously deficient for not having done so.

36.60 Finally, one has to question the validity of the cost of power purchase figures used in the DEIS. The agencies have asserted that the price for open market power purchases could increase in 1980 dollars (DEIS at 8, App. 4 at R-20) between 100 and 300 percent by 1985, to

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36.58 (cont.)

[Footnote continued]
Utah Power & Light would like to purchase power and states only that no power from Hunter Units No. 3 and No. 4 is available for "joint ownership." Indeed, the letter offers capacity for joint ownership in the 1987-1988 time period.

We marvel: (a) that Deseret's wholly unsubstantiated allegations (DEIS App. 8 at R-46) have been unquestioningly accepted by the agencies; and (b) that nowhere in the DEIS is there any analysis of how the stated availability of excess capacity in 1987-1988 might impact the need for Unit 2 of the Moon Lake project and, accordingly, the economics of the entire project.

36.60 (cont.) between 50 and 100 mills/kwh. DEIS at 8, App. 4 at R-20. These cost increases are said to be "extremely prohibitive" to Deseret's consumers. DEIS App. 4 at R-20. Yet, the fact is that at least one utility has offered to sell power at costs estimated to be 78 mills/kwh in 1985, 88 mills/kwh in 1986, and 98 mills/kwh in 1987. DEIS App. 8 at R-45. These costs, which have been escalated at a 12 percent compounded rate (id.), are certainly less than 50 mills/kwh in 1980 dollars. More importantly, they are, at least for 1985, by Deseret's own admission, "comparable to the in-service projected mill/kwh of the Moon Lake Project." DEIS App. 8 at R-45.

36.61 From reading the draft EIS' discussion (or lack thereof) of economic issues, one can only conclude that the agencies once again failed to fulfill their mandate independently to analyze data submitted by Deseret and to consider both alternative courses of action and their effects. Therefore, it is absolutely impossible for them to engage in reasoned decision-making with regard to the proposal submitted by Deseret.

V. CONDITIONING RIGHTS-OF-WAY AND LOAN GUARANTEES ON SOCIO-ECONOMIC IMPACT MITIGATION

36.62 As noted earlier in these comments, the NEPA regulations explicitly contemplate that, to fulfill the mandate of NEPA "to the fullest extent possible" (40 C.F.R. § 1500.6) agencies such as BLM and REA will "[i]nclude appropriate conditions in grants, permits or other approvals" and will "[c]ondition funding of actions on mitigation." 40 C.F.R. § 1505.3. This is to be done unless "existing law applicable to the agency's operations expressly prohibits" such conditioning (40 C.F.R. § 1500.6).

Despite this clear mandate, BLM EIS team members have raised questions about their authority and obligation to impose conditions requiring socioeconomic mitigation. For that reason, we include in this section of our comments a brief discussion of the relevant legal authorities applicable to both federal agencies.

A. The Bureau of Land Management

There are two related aspects to the question of whether the BLM is authorized or required to impose in

36.62 (cont.) connection with the grant of a right-of-way conditions designed to mitigate adverse environmental impacts, including socioeconomic impacts: (1) Does the Secretary of the Interior as a general matter have the authority to impose conditions on the grants of rights-of-way over public lands? (2) Is the scope of the Secretary's authority and the Secretary's obligation broad enough to encompass socioeconomic impact mitigation? As will be demonstrated in greater detail below, an affirmative answer to the first question can be found entirely within the Federal Land Policy and Management Act of 1976, 43 U.S.C. §§ 1761-1771 ("FLPMA"), and predecessor statutes. An affirmative answer to the second is found not only in FLPMA, but also in NEPA.

1. General Authority to Impose Conditions

It is beyond dispute that the Secretary of the Interior has the authority to impose conditions on grants of rights-of-way. This authority is explicit both in Title V of FLPMA, which governs the rights-of-way at issue

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36.62 (cont.) in this case, and in regulations implementing that Act.*/

Section 504 of FLPMA, 43 U.S.C. § 1764, provides in relevant part:

> "(c) Applicability of regulations or stipulations. Rights-of-way shall be granted, issued or renewed pursuant to this title under such regulations or stipulations, consistent with the provisions of this title or any other applicable law, and shall also be subject to such terms and conditions as the Secretary concerned may prescribe regarding extent, duration, survey, location, construction, maintenance, transfer or assignment, and termination."

* * *

> "(e) Regulatory requirements for terms and conditions; revision and applicability of regulations. The Secretary concerned shall issue regulations with respect to the terms and conditions that will be included in rights-of-way pursuant to Section 505 of this title. Such regulations shall be regularly revised as needed. Such regulations shall be applicable to every right-of-way granted or

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*/ Addressing the issue whether the Secretary has the authority to impose conditions on grants of rights-of way, the United States Court of Appeals for the Ninth Circuit, in Grindstone Butte Project v. Kleppe, No. 78-1134 (9th Cir. Jan. 30, 1981), recently stated that FLPMA "specifically authorizes the terms and conditions at issue here."

36.62 (cont.)

issued pursuant to this title and to any subsequent renewal thereof, and may be applicable to rights-of-way not granted or issued, but renewed pursuant to this title." (Emphasis supplied in paragraph (c)).

Section 505 of the Act, 43 U.S.C. § 1765, provides:

> "Each right-of-way shall contain --
>
> "(a) terms and conditions which will (i) carry out the purposes of this Act and rules and regulations issued thereunder; (ii) minimize damage to scenic and esthetic values and fish and wildlife habitat and otherwise protect the environment; (iii) require compliance with applicable air and water quality standards established by or pursuant to applicable Federal or State law; and (iv) require compliance with State standards for public health and safety, environmental protection, and siting, construction, operation, and maintenance of or for rights-of-way for similar purposes if those standards are more stringent than applicable Federal standards; and
>
> "(b) such terms and conditions as the Secretary concerned deems necessary to (i) protect Federal property and economic interests; (ii) manage efficiently the lands which are subject to the right-of-way; (iii) protect lives and property; (iv) protect the interests of individuals living in the general area traversed by the right-of-way who rely on the fish, wildlife, and other biotic resources of the area for subsistence purposes; (v) require location of the right-of-way along

36.62 (cont.)

> a route that will cause least damage to the environment, taking into consideration feasibility and other relevant factors; and (vi) otherwise protect the public interest in the lands traversed by the right-of-way or adjacent thereto." (Emphasis supplied.)

The regulations which implement Title V of FLPMA, 43 C.F.R. Part 2800, 45 Fed. Reg. 44,518 (July 1, 1980), contain similar provisions authorizing and requiring the BLM to impose terms and conditions on grants of rights-of-way. Section 2800.0-2 of the regulations provides:

> "It is the objective of the Secretary of the Interior to grant rights-of-way and temporary use permits, covered by the regulations in this part, to any qualified individual, business entity, or governmental entity and to regulate, control and direct the use of said rights-of-way on public land so as to:
>
> "(a) Protect the natural resources associated with the public lands and adjacent private or other lands administered by a government agency.
>
> "(b) Prevent unnecessary or undue environmental damage to the lands and resources.
>
> "(c) Promote the utilization of rights-of-way in common with respect to engineering and technological compatibility, national security and land use plans.

36.62 (cont.)

> "(d) Coordinate, to the fullest extent possible, all actions taken pursuant to this part with State and local governments, interested individuals and appropriate quasi-public entities."

Section 2801.2, which specifically governs the terms and conditions on rights-of-way, provides in subsection (b):

> "(b) All right-of-way grants and temporary use permits issued, renewed, amended or assigned under these regulations shall contain such terms, conditions, and stipulations as may be required by the authorized officer regarding extent, duration, survey, location, construction, operation, maintenance, use and termination. The authorized officer shall impose stipulations which shall include, but shall not be limited to:
>
> * * *
>
> "(3) Requirements designed to control or prevent damage to scenic, esthetic, cultural and environmental values (including damage to fish and wildlife habitat), damage to Federal property and hazards to public health and safety.
>
> * * *
>
> "(6) Requirements for compliance with State standards for public health and safety, environmental protection and siting, construction, operation and maintenance when those standards are more stringent than Federal standards." (Emphasis supplied.)

36.62 (cont.)

The Secretary's authority to impose terms and conditions on grants of rights-of-way was well established prior to enactment of FLPMA. This authority was recently affirmed in Grindstone Butte Project v. Kleppe, No. 78-1134 (9th Cir. Jan. 30, 1981), where the Ninth Circuit, interpreting the Act of March 3, 1891, held that "the Secretary does have statutory authority to impose reasonable conditions, necessary to protect the public interest, on irrigation rights-of-way granted over federal lands under the 1891 Act." (Emphasis supplied.)*/ The source of the Secretary's authority before FLPMA was twofold. It derived first from the statutes empowering the Secretary to dispose of public lands. The 1891 Act, along with the Act of February 15, 1901, authorized the Secretary "to

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*/ See also United States ex rel. Sierra Land & Water Co. v. Ickes, 84 F.2d 228 (D.C. Cir.) cert. denied, 299 U.S. 562 (1936), where the court noted the broad jurisdiction conferred upon the Secretary to promulgate reasonable regulations governing the disposition of public lands and concluded that rights-of-way do not vest until the Secretary has approved the prospective grantee's application, and Hyrup v. Kleppe, 406 F.Supp. 214, 216 (D. Colo. 1976), aff'd., Nos. 76-1452, 76-1767 (10th Cir. Nov. 7, 1977), where the District Court concluded that the Act of February 15, 1901 authorized the Secretary to condition the use of rights-of-way by regulations to protect the public interest, which included protection of the environment.

36.62 (cont.)

condition the grant of rights-of-way over federal lands upon compliance with reasonable regulations and terms designed to protect the public interest." Grindstone Butte Project v. Kleppe, supra; Hyrup v. Kleppe, supra. The second source of authority was NEPA, under which federal agencies have "the continuing responsibility . . . to use all practicable means consistent with other essential considerations of national policy, [to protect the environment]." 42 U.S.C. § 4331(b).

The Department of the Interior maintained before FLPMA that the Secretary was authorized to condition grants of rights-of-way "to ensure that the public interest will be protected." Zelph S. Calder, 16 IBLA 27, 81 I.D. 339 (1974). "In view of the fact that we have held that the Secretary may reject a right-of-way application which would adversely affect the public interest, it is no less reasonable to hold that the Secretary may qualify his approval by requiring that the grantee stipulate to conditions for protection of the public interest." Grindstone Butte Project, 18 IBLA 16, 19 (Nov. 7, 1974). Zelph S. Calder, supra. Rimrock Canal Co., 80

36.62 (cont.)

I.D. 197 (1973). See Verde River Irrigation & Power District v. Work, 24 F.2d 886 (D.C. Cir. 1928), cert. denied, 279 U.S. 854 (1929); United States v. Henrylyn Irrigation Co., 205 F.2d 970 (D. Colo. 1912); Solicitor's Opinion, M-36500 (May 5, 1958); Solicitor's Opinion, 60 I.D. 477, 478-79 (1951).*/

The authority of the Secretary under FLPMA is related in nature and scope to the authority implicit in the earlier statutes. See New England Fish Co., 42 IBLA 200 (Aug. 22, 1979); Stanky S. Leach, et al., 35 IBLA 53

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*/ The Department claims similar authority with respect to other actions regarding use of public lands. It has held that section 603 of FLPMA and the regulations thereunder, 43 C.F.R. Subpart 3109, and 43 C.F.R. § 3120.2-3, provide ample authority for the BLM to require oil and gas lessees to agree to wilderness protection stipulations. Palmer Oil & Gas Co., 43 IBLA 115 (Sept. 24, 1979). Decisions prior to FLPMA also held that the Secretary had the authority to impose reasonable surface management stipulations, not inconsistent with the purposes for which the lease is issued, in order to protect the environmental quality of the land. See Duncan Miller, IBLA 75-45 (Nov. 25, 1974); Richard P. Cullen, 18 IBLA 414 (Feb. 10, 1975); Bill J. Maddox, 24 IBLA 147 (Mar. 10, 1976); Cecil A. Walker, 26 IBLA 71 (July 9, 1976). Cf. Gulf Oil Corp. v. Morton, 493 F.2d 141 (9th Cir. 1973) (upholding Secretary's authority to suspend oil leases on environmental grounds, even where the language of the statute did not specifically authorize him to do so).

36.62 (cont.)

(May 9, 1978). The earlier authority, as noted in Grindstone Butte Project v. Kleppe, supra, was not as explicit. The regulations which governed rights-of-way, 43 C.F.R. Part 2800 (1979), superseded by 45 Fed. Reg. 44,518 (July 1, 1980), were also less explicit and less attentive to environmental concerns. Nevertheless, the court found that the lack of explicitness did not preclude imposition of the environmental protection conditions at issue there. Accordingly, given the more explicit authority in FLPMA and the regulations issued thereunder, there can be no doubt that the Secretary's authority is more than ample to authorize him to impose terms and conditions necessary to mitigate the socioeconomic impacts at issue here.

2. The Secretary's Obligation to Impose Conditions

Although the Secretary's authority before FLPMA to impose conditions on the grant of rights-of-way in order to protect the environment may have been viewed as discretionary, the Secretary is obligated by FLPMA to impose such conditions. Section 505 of FLPMA, 43 U.S.C. § 1765, explicitly states: "Each right-of-way shall contain -- (a) terms and conditions which will . . . protect the

36.62 (cont.)

environment . . . ." Similarly, the regulations provide that the authorized officer "shall impose stipulations which shall include, but shall not be limited to: . . . (3) Requirements designed to control or prevent damage to scenic, esthetic, cultural and environmental values . . . ." 43 C.F.R. § 2801.2(b). These provisions expressly require the Secretary to exercise his authority to impose conditions to protect the human environment.

Moreover, the case law interpreting NEPA makes clear that that statute imposes a further and explicit requirement on the Secretary. As the Acts of 1891 and 1901, and now FLPMA, authorize and direct the Secretary to impose appropriate conditions, including environment-protection conditions, so does NEPA compel him to act to protect the environment. "NEPA made environmental protection part of the mandate of every federal agency." Grindstone Butte Project v. Kleppe, supra. Detroit Edison Co. v. Nuclear Regulatory Comm., 630 F.2d 450, 451; (6th Cir. 1980); Calvert Cliffs' Coordinating Committee, Inc. v. AEC, 449 F.2d 1109, 1112 (D.C. Cir. 1971). "Thus, the Secretary of the Interior is not only permitted but

36.62 (cont.)

required to take environmental values into account in carrying out regulatory functions." *Grindstone Butte Project* v. *Kleppe*, *supra*. *See* *Detroit Edison Co.* v. *NRC*, *supra*, 630 F.2d at 451; *Flint Ridge Development Co.* v. *Scenic Rivers Ass'n.*, 426 U.S. 776, 787-88 (1976); *Calvert Cliffs' Coordinating Committee, Inc.* v. *AEC*, *supra*, 449 F.2d at 1112. "[T]he Secretary must comply with NEPA's mandate to protect the environment." *Grindstone Butte Project* v. *Kleppe*, *supra*. The Department of the Interior has recognized that it is obligated to support and implement the national policy expressed by Congress in NEPA. *See* *Southern California Motorcycle Club, Inc.*, *Sierra Club*, 42 IBLA 164 (Aug. 17, 1979).

Having established that the Secretary has the authority and obligation to impose conditions, the only remaining question is: How broad a range of interests must the Secretary consider? The answer quite simply is that the scope of issues to which the Secretary may address himself is quite broad, as broad as the public interest, and specifically includes socioeconomic issues. As the court stated in *Grindstone Butte Project* v. *Kleppe*,

36.62 (cont.)

supra, the Secretary has the authority to impose reasonable conditions, "necessary to protect the public interests," and "designed to protect the public interest." Similary, in *Hyrup* v. *Kleppe*, *supra*, the District Court held that the Secretary was authorized to condition the use of a right-of-way "to protect the public interest."

As noted above, FLPMA section 505, 43 U.S.C. § 1765, provides that each right-of-way "shall contain" terms and conditions which will "minimize damage to scenic and esthetic values and fish and wildlife habitat and otherwise protect the environment." Similarly, under NEPA, which requires mitigation of both socioeconomic and other environmental impacts, agencies must "minimize all unnecessary adverse environmental impact . . . except when specifically excluded by statute or when existing law makes compliance with NEPA impossible." *Public Service Co. of New Hampshire* v. *NRC*, 582 F.2d 77 (1st Cir.), *cert. denied*, 439 U.S. 1046 (1978).

The authority of an agency such as BLM or REA to consider socioeconomic impacts has been expressly recognized in cases such as *Hanly* v. *Mitchell*, 460 F.2d 640 (2d

36.62 (cont.)

Cir.), *cert. denied*, 409 U.S. 909 (1972), and *Image of Greater San Antonio, Texas* v. *Brown*, 570 F.2d 517 (5th Cir. 1978).

In this case, there is no statutory conflict which would prevent the BLM from complying fully with NEPA. On the contrary, the Bureau is authorized by FLPMA to impose the sort of conditions necessary to achieve the goals of NEPA. When NEPA and FLPMA are read together, it is clear that BLM must take measures to mitigate socioeconomic impacts of the Moon Lake Power Plant Project.

This view is supported by the fact that in December 1979, the Department issued a Solicitor's Opinion on the extent to which the National Historic Preservation Act (NHPA) requires cultural resources to be identified and considered in the grant of a right-of-way. 87 I.D. 27 (Dec. 6, 1979). *Accord*, BLM Manual 8100.7(A) ("The Bureau assures that its actions or authorizations take into consideration their effect on cultural resources located on non-federal land"). If the NHPA imposes such a broad mandate, certainly NEPA, on which the historic preservation act is modeled, does as well. In fact the Solicitor's

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36.62 (cont.)

Opinion cited above (87 I.D. 27 (Dec. 6, 1979)) assumed that both statutes were equally encompassing. Moreover, the Council on Environmental Quality regulations implementing NEPA explicitly state that the statute applies to indirect effects on the environment; 40 C.F.R. section 1508.8, quoted above, provides that "effects" include indirect effects, which in turn include growth inducing effects and *other effects related to induced changes in the pattern of land use, population density or growth rate*, and aesthetic, historic, cultural, *economic, social*, or health effects, *whether direct, indirect, or cumulative*.

The courts, in giving broad and forceful interpretation to NEPA, have agreed, and held that the law applies to indirect effects. "We think NEPA is concerned with indirect effects as well as direct effects." *Minnesota Public Interest Research Group* v. *Butz*, 498 F.2d 1314, 1322 (8th Cir. 1974). The Department of the Interior, in the regulations implementing FLPMA, has recognized this obligation, in seeking to "control and direct the use of . . . rights-of-way on public land so as to" protect the natural resources associated with adjacent private

36.62 (cont.) lands and to prevent unnecessary or undue environmental damage to those lands and resources. 43 C.F.R. § 2800.0-2, 45 Fed. Reg. 44,526-27.

It is beyond dispute that the actions contemplated here will have serious "effects" extending beyond the immediate area on which the project is to be located. Such impacts are squarely within the ambit of NEPA and its implementing regulations. In light of the obligations which NEPA imposes on BLM, and in light of the requirement to consider socioeconomic impacts along with other environmental impacts, BLM must not only disclose fully and objectively those impacts (which it has not done), but must also consider (and, if appropriate, adopt) alternatives with less serious socioeconomic impacts or act to mitigate the adverse impacts of the proposed plant by conditioning any and all approvals on the socioeconomic impact mitigation of the type discussed in these comments.

B. The Rural Electrification Administration

It is axiomatic that the Federal government, in making grants, loans or loan guarantees has the power to impose such conditions as it deems necessary. In Ivanhoe

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36.62 (cont.) Irrig. Dist. v. McCracken 357 U.S. 275, 295 (1958), the Supreme Court stated:

> "Also beyond challenge is the power of the Federal Government to impose reasonable conditions on the use of federal funds, federal property and federal privileges. See Berman v. Parker, 348 U.S. 26 (1954), and Federal Power Commission v. Idaho Power Co., 344 U.S. 17 (1952). The lesson of these cases is that the Federal Government may establish and impose reasonable conditions relevant to federal interest in the project and to the overall objectives thereof."

This general authority to impose terms and conditions may, of course, be limited by specific statutory provision. But the Rural Electrification Act of 1936 does not limit this power. On the contrary, the Act explicitly provides that "loans shall be on such terms and conditions relating to the expenditure of the moneys loaned and the security therefor as the Administrator shall determine." 7 U.S.C. § 902. This provision is made applicable to loan guarantees under the Act by 7 U.S.C. § 939.

As is the case of BLM, NEPA and its implementing regulations unambiguously impose on REA an obligation to exercise its authority over the disposition of loan

36.62 (cont.)

guarantees in accordance with NEPA and the CEQ's implementing regulations. As noted above, section 102 of NEPA provides: "The Congress authorizes and directs that, to the fullest extent possible: (1) the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in this Act." 42 U.S.C. 4332. The declared policy of the United States, as set forth in section 101 of NEPA, is "to use all practicable means and measures" to preserve the quality of life in our country. 42 U.S.C. § 4331(a). The courts have concluded that "it was plainly the intent of Congress that the full power of the federal government be brought to bear upon the problem [the deterioration of the national environment] in order to effectuate the policies expressed." Stockslager v. Carroll Electric Cooperative Corp., 528 F.2d 949, 952 (8th Cir. 1976).

> "The language of NEPA as well as its legislative history make it clear that the Act is more than an environmental full disclosure law. NEPA was intended to effect substantive changes in decisionmaking. . . . The purpose is to 'insure that the policies enunciated in section 101 are implemented.'

36.62 (cont.)

> S. Rep. 91-296, 91st Cong., 1st Sess. 19 (1969). (Emphasis added.) The procedures included in § 102 are not ends in themselves. They are intended to be 'action forcing.' Id. at 9." Environmental Defense Fund v. Corps of Engineers, 470 F.2d 289 (8th Cir. 1972) cert. denied, 412 U.S. 931 (1973).

Other courts have similarly recognized that NEPA imposes substantive duties in addition to the procedural, environmental impact statement requirements of section 102(2)(C). See Conservation Council of North Carolina v. Froehlke, 473 F.2d 664 (4th Cir. 1974); Calvert Cliffs' Coordinating Comm. v. AEC, 449 F.2d 1109 (D.C. Cir. 1971); Scherr v. Volpe, 466 F.2d 1027 (7th Cir. 1972); Hanly v. Kliendienst, 471 F.2d 823 (2d. Cir. 1972), cert. denied, 412 U.S. 908 (1973).

Moreover, the courts have consistently held that the substantive requirements of NEPA obligate agencies to take steps to mitigate the adverse environmental impacts of their actions. "NEPA implies a requirement that action be taken to mitigate the adverse effects of major federal actions." Stop H-3 Ass'n v. Brinegar, 389 F. Supp. 1102 (D.C. Hawaii 1974). It has been held that the "operation of facilities must be shaped so as to minimize adverse

36.62 (cont.)

environmental consequences." Sierra Club v. Morton, 400 F. Supp. 610 (D. Cal. 1975). "The broader objectives of NEPA clearly encompass agency use of the environmental information developed in an EIS to minimize environmental damage to the greatest extent possible consistent with other important objectives." City of Davis v. Coleman, 521 F.2d 661 (9th Cir. 1975). See Rochester v. United States Postal Service, 541 F.2d 967 (2d. Cir. 1976).

It is well-established that the REA is required by NEPA to take environmental values into account in carrying out its functions, unless there is a clear and unavoidable conflict of statutory authority prohibiting compliance with NEPA. See Detroit Edison Co. v. NRC, 630 F.2d 450 (6th Cir. 1980). "Full compliance" with NEPA's requirements "cannot be avoided unless such compliance directly conflicts with other existing statutory duties." Environmental Defense Fund v. Mathews, 410 F. Supp. 336 (D.D.C. 1976). There is obviously no such bar to REA's full compliance with the substantive and procedural requirements of NEPA. Indeed, the agency has acknowledged and made it an official policy that it must implement NEPA

36.62 (cont.)

in its actions. In REA Bulletin 20-21; 320-21, the agency stated:

> "In accordance with national policy, as stated in the National Environmental Policy Act (NEPA) and elsewhere, REA will assess the environmental aspects of its policies, plans and programs in order to avoid or minimize adverse effects, including secondary effects, whenever possible and to restore or enhance environmental quality to the fullest extent practicable."

As described earlier, the CEQ regulations implementing NEPA provide not only for a broad-ranging inquiry into the impacts, including socioeconomic impacts of proposed actions, but also for agency action to mitigate such impacts. Accordingly, REA Bulletin 20-21; 320-21 also provides that "alternative actions that will avoid or minimize adverse impacts will be explored" and that "REA will include in all new loan contracts a provision to the effect that the borrower shall comply with all applicable Federal, State and local requirements for the protection of the environment."

Given the broad mandate of NEPA, and given the REA's own adoption of a policy that requires it to conduct its activities to "avoid or minimize adverse effects,

36.62 (cont.) including secondary effects, whenever possible and to restore or enhance environmental quality to the fullest extent practicable" (REA Bulletin 20-21; 320-21), REA is obligated to avoid or minimize or to mitigate the adverse socioeconomic impacts of the proposed plant. The REA's implicit and statutory authority to impose conditions on its loan guarantees empowers and indeed requires it to condition the subject loan guarantee on accomplishment of the mitigation measures discussed in these comments.

VI. ADDITIONAL COMMENTS

A. Cumulative Impacts

The agencies are under an obligation to consider cumulative impacts of the specific project under consideration and other projects underway. This can, of course, be accomplished to some extent by "tiering" (40 C.F.R. § 1502.20) and by "incorporation by reference" (40 C.F.R. § 1502.21). However, it is clear that merely recognizing the existence of cumulative impacts and stating that environmental impact statements relevant to those impacts exist or may exist in the future is not sufficient compliance with the NEPA regulations or the statutory mandate.

The draft EIS adverts to area developments such as oil and gas leasing; oil shale development (discussed in part in the EIS prepared in connection with the Prototype Oil Shale Leasing Program); regional coal leasing (to be discussed in a forthcoming EIS (see DEIS at 134)); the Rocky Mountain Pipeline; and the construction of other power plants, such as the Intermountain Power Project (not mentioned, but appearing on a map included in the draft EIS) and Utah Power & Light's Hunter Plant.

36.63 But neither explicitly nor by reference are the cumulative

36.63 (cont.) environmental or socioeconomic impacts of these and other projects considered.

36.64 Thus, for example, the draft EIS states that the unavoidable impacts of open market purchases of coal will be discussed in regional coal environmental impact statements. We fail to see how an informed decision as to the open market purchase alternative, which would concededly have adverse impacts totally aside from the impacts stemming from the coal transport methods involved, can be made before the relevant environmental impacts are assessed. Certainly the regulations do not contemplate incorporation by reference of inchoate or prospective environmental impact statements; if an impact statement discussing the relevant issues is not available for incorporation by reference, the relevant issues must be discussed in the EIS for the project in question.

36.65 Similarly, it is stated that oil shale development will or may impact on the need for and use of the power to be generated by the second unit of the Moon Lake project. To the extent that such oil shale development occurs in Colorado, as is most likely,*/ not

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*/ *See*, *e.g.*, Final Report of the Interagency Oil Shale Task Force, "Potential Future Role of Oil Shale: Prospects and Constraints," at 1 (Federal Energy Administration 1974); Final EIS for the Prototype Oil Shale Leasing Program (U.S. Department of the Interior 1973).

36.65 (cont) only would the net energy analysis likely be affected,*/ but also, there might very well be impacts on the general availability of power. These possible cumulative impacts can be inferred from, but are not analyzed in, the draft EIS.

36.66 Accordingly, another area of deficiency in the draft EIS is the failure adequately to consider cumulative impacts and alternatives that might be used to mitigate such impacts. As a result of this failure, nowhere in the draft EIS is there any recognition of the fact that locating the plant in Colorado would likely exert a leveling effect on the imbalance between impacts (such as the socioeconomic impacts discussed above) and benefits (receipt of revenues from the plant), might make power available closer to where it is likely to be needed, and might minimize the adverse environmental

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36.65 (cont.) */ *See* DEIS App. 20 at R-136. It seems to be a premise of the draft EIS that energy required for oil shale development will be used in Utah. If such energy were used in Colorado, the extra transmission costs allegedly associated with a Rangely site would be nonexistent. In fact, extra transmission costs would then be associated with a Bonanza site. This possibility is not addressed in the draft EIS. Failure to do so is a serious deficiency.

36.66 (cont.) and economic effects of locating a power plant at a considerable distance from its fuel source.*/

B. Cooperating Agencies

The NEPA implementing regulations of the Council on Environmental Quality provide that, as early as possible in the NEPA process, the lead agency or agencies shall request the participation of other federal agencies with jurisdiction by law or special expertise concerning the proposal. 40 C.F.R. §§ 1501.6(a), 1501.7(a). These

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36.66 (cont.) */ It is to be noted here, and discussed in greater detail elsewhere in these comments, that in discussing a "dispersed" generating system, the draft EIS states that:

> "A heterogeneous energy generating system with an associated transmission network would be more extensive, complex, and interconnected than that proposed for the Moon Lake project; and as such would have increased efficiency losses and failures. The costs of such a system would be greater, both in capital and operating costs and in more subtle efficiency and availability penalty costs." DEIS at 107-108.

This statement is of course equally true of a system which would locate the power plant at a considerable distance from the coal source, such as that proposed by the applicant. This fact is not disclosed as a consideration in the DEIS.

agencies are required to participate in the NEPA process and in particular in the scoping aspects of that process.

In the present case, it is at best unclear how the expertise of those agencies which were asked to participate and have participated in the NEPA process has been utilized. In addition, it appears that certain agencies with expertise (as identified by CEQ, see 45 Fed. Reg. 57,488 (August 28, 1980), such as the Department of Energy, were not even asked to participate in the process. It also appears that other agencies with expertise and perhaps jurisdiction by law, such as the United States Army Corps of Engineers and the Office of Surface Mining, Reclamation and Enforcement, were requested to participate but declined to do so.

Thus, in Chapter 5 of the draft EIS, there first appears a list of "Participating Agencies -- Federal" and then a list of other agencies which "will be included in the data gathering and/or EIS review process." DEIS at 329-330. These lists are followed by a statement that scoping meetings were held "for local, State and Federal agencies" and that there have been other contacts with "various agencies and individuals." DEIS at 330. There is also another list of agencies attending a meeting on

May 21-23, 1980; that meeting took place long after the scoping process had been completed and involved a review of the preliminary draft EIS. Id. Finally, from a listing of "federal contacts," it appears that only seven agencies have taken or plan in the future to take any role that might conceivably be viewed as active. These agencies seem to have participated on the most limited basis possible. This would include the Water and Power Resources Service, which is the only federal agency with any expertise in water issues.

36.67 That portion of the draft EIS which addresses the role, if any, of the cooperating agencies in the NEPA process to date thus consists of meaningless lists of names, conclusory statements, and totally incomprehensible descriptions of the "Nature of Contact" and "Action Taken." Consequently, it is virtually impossible to determine the extent to which, if at all, the lead agencies and cooperating agencies have fulfilled their respective responsibilities to involve other agencies with jurisdiction by law or special expertise at the earliest possible point in the NEPA process (40 C.F.R. § 1501.6) and to participate in the NEPA process, including the scoping process, and "enhance" the lead agencies'

36.67 (cont.) "interdisciplinary capability" (40 C.F.R. § 1501.6(b).)*/ We submit that this deficiency, which is only symptomatic, is itself evidence that the lead agencies have, in violation of their responsibilities, failed to involve or draw upon the expertise of other agencies. Further evidence of this failure is, of course, found in the other portions of the draft EIS which are, perhaps as a result of the noninvolvement of other agencies, not in plain language (but see 40 C.F.R. § 1502.8), encyclopedic rather than analytic (but see 40 C.F.R. § 1502.2(a)), repetitive (but see 40 C.F.R. §§ 1502.4, 1502.20), and perhaps most importantly not particularly useful to either decisionmakers or the public (but see 40 C.F.R. §§ 1502.14, 1502.15).

C. Failure to Verify Data

Section 1506.5 of the NEPA regulations provides that, to the extent the agency relies on data submitted by the applicant:

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*/ We recognize that written comments are being solicited both from agencies which have already "participated" and from agencies which have not been involved to date. DEIS at 334. Still, it is hard to see how such comments can be a substitute for meaningful participation in the earlier aspects of the NEPA process, at least to the extent those aspects define the issues and alternatives considered in the draft and final EISs.

> "The agency shall independently evaluate the information submitted and shall be responsible for its accuracy. If the agency chooses to use the information submitted by the applicant in the environmental impact statement, either directly or by reference, then the names of the persons responsible for the independent evaluation shall be included in the list of preparers (§ 1502.17). It is the intent of this paragraph that acceptable work not be redone, but that it be verified by the agency."

36.68 Nowhere in the draft EIS is there any indication that any of the data or information submitted by the applicant, by persons retained by the applicant, or by interested local agencies in Utah, has been verified and independently evaluated. Repeated citation to and reliance on such data is clearly improper unless independent verification and analysis has occurred and is reflected in the environmental impact statement. See, e.g., Trinity Episcopal School Corp. v. Romney, 523 F.2d 88 (2d Cir. 1975); Miller v. United States, 492 F. Supp. 956 (E.D. Ark. 1980).

APPENDIX A

JOHN S. GILMORE

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Graduate work in psychology and sociology at Stanford University

The means and the effects of applying new technology (or applying technology in new situations) has been the central theme of Gilmore's research at DRI since 1960.

His work has largely been in socioeconomic impact assessment/management during the last decade. He directed many impact problem identification projects, and others developing impact assessment methodologies.

Recently, Gilmore has concentrated on planning and consulting for the corporate management of socioeconomic impacts--equitably distributing benefits and avoiding negative impacts at minimum costs--for clients in the natural resource and energy industries.

Earlier, he directed the Institute's research projects into the diversification experience of defense firms, into the applicability of defense systems approaches to solving civil problems, and into identifying the means used by commercial manufacturing firms to acquire new technology from outside their own organizations. He supervised technology assessment projects on hydrogen energy systems, oil shale development and coal use.

In the 1950's, Gilmore founded and for six years published weekly newspapers in the uranium boom region of western Colorado, receiving professional awards for editorial writing, journalistic achievement, and community service. His corporate experience was in operations auditing and economic analysis with the Mountain States Telephone and Telegraph Company, and in personnel analysis at the Mountain States Employers Council, Inc.

In addition to his Institute research, Gilmore's consulting clients have included Stone and Webster Engineering Corporation, the Governor's (Utah) Blue Ribbon Energy Policy Task Force, the Alberta Ministry of Environment, and several agencies of the State of Colorado. He was a member-at-large of the Colorado State Highway Commission (1976-79), and was a delegate to the 1978 White House Conference on Balanced National Growth and Economic Development. Gilmore has been asked to organize and chair an Engineering Foundation Conference in late 1981 on the Implications of Large-Scale Oil Shale Development. He belongs to the American Economic Association, the Colorado Press Association, the American Association for the Advancement of Science, and the Society of Professional Journalists.

He is a former Professor in the College of Law, University of Denver, where he taught courses in Environment and Resources and in Legal Intervention in Community Development.

APPENDIX A-1

DIANE M. HAMMOND

B.S., Mathematics, South Dakota School of Mines and Technology
M.B.A., University of Houston

Ms. Hammond's research activities at DRI are concentrated in the areas of socioeconomic impact assessment and management of energy and other natural resource development, and regional economics. These projects have dealt with growth management methods and financial alternatives for areas impacted by rapid development of natural resources. Projects have included planning for the management of impacts, public financial forecasts, housing analyses, societal vulnerability analyses and economic base studies.

Recently she has assisted in the development of corporate level growth management strategies and policies for two major resource firms. Ms. Hammond has managed the preparation of a legislative environmental impact statement on providing aid to energy-impacted communities. She has also been involved with projects to analyze energy-related impacts on Metropolitan Denver and to assess the socioeconomic impacts associated with power plant construction. Her supervisory experience also includes individual projects to assist several resource development companies, opening mines in northwest Colorado, Minnesota, and the State of Washington, in minimizing their impacts on nearby communities and accommodating their employees.

Ms. Hammond has participated in preparation of a mine/mill administrator's handbook dealing with uranium-related impacts. Other projects have included a comparison of impact mitigation mechanisms in six states, a classification of the different impacts associated with coal production in the East and West, and an analysis of currently available industry, state or federal programs addressing impact mitigation. She has also forecasted local government budgets in two Appalachian energy-impacted communities, which included augmenting and applying a computer-based financial forecasting model. She has participated in a wide range of other energy development and impact mitigation activities for both public and private sponsors in Colorado, Wyoming, Virginia, West Virginia, Montana, Nevada, Utah and Illinois.

Previously she was employed for three years with General Mills, Inc., in Minneapolis, Minnesota. As Assistant to the Controller, Grocery Products Sales Division, her responsibilities involved research and planning related to increasing efficiency and control. While at General Mills, she also performed marketing research of new venture possibilities for company expansion and evaluation of new grocery products.

Ms. Hammond is Manager, Growth Management Projects within the Industrial Economics Division.

APPENDIX B

COMMENTS ON SOCIOECONOMIC ASPECTS OF MOON LAKE POWER PLANT PROJECT DRAFT ENVIRONMENTAL IMPACT STATEMENT

March 3, 1981

by John S. Gilmore and Diane Hammond

These comments first deal with several major issues of the quality of this draft environmental statement (DES), and then offer more detailed comments resulting from page by page examination of the DES.

The Major Issues

Our criteria for discussing DES quality at both levels are:

- Does the DES conform to the National Environmental Policy Act of 1969 (NEPA), and the regulations for implementing the Act promulgated by the Council on Environmental Quality (CEQ) in 1978?
- Do the results and findings of the DES reflect observation or documentable findings about the state of society in the impact area, and about the various impacts anticipated? Are they reasonably complete? Are they internally consistent?
- Are analytical or observational methodologies appropriately chosen and correctly executed? Do their results meet a test of common sense?
- Is the level of detail in the DES appropriate to the evident significance of the socioeconomic topic or problem area?

The socioeconomic sections of the DES fail to meet the requirements of NEPA and the CEQ regulations and the other criteria in several ways:

1. It inadequately describes the "environment to be affected" particularly as it is subject to "cumulative impacts." [40 CFR 1502.15 and 1508.7]
2. It fails to describe socioeconomic mitigation measures as required. [40 CFR 1502.14]
3. It obscures and mis-states the level of uncertainty properly surrounding its description of adverse impacts, and fails to treat uncertainty as required. [40 CFR 1502.22(b)]

4. It omits any discussion of certain significant adverse impacts; some of the omissions might have been avoided by meeting the requirements for tiering (with the Northwest Colorado Coal Regional Environmental Statement and Supplement) as required. [40 CFR 1502.20]

Each of these is discussed below.

1. The socioeconomic environment to be affected or the state of society at the time of the proposed action is that which will exist during the construction and operation of the proposed power plant. It should be described with any committed mitigation measures which would afrect it. It should be adequate to compare the project effects or impact ("with the project" as contrasted with "without the project") in the three major categories of adverse socioeconomic impacts:

- Market failures--where sudden increases in demand for labor, housing, commercial capital, and public capital are not met by existing market mechanisms at any foreseeable price.
- Shortfalls in government facilities and services--where local (and possibly state) governments lack fiscal resources, expertise, and experience in providing the services and facilities needed to accommodate a growing population, or where governments are unwilling or unable to make the investments necessary to provide them.
- Social (and political) disruption--where existing relationships and systems break down because of stresses from growth and conflict between the existing population and the newcomers.

Complicated by:

- Inadequacies and breakdowns in exogenous institutions or systems—examples are response failures in secondary mortgage markets, governmental impact assistance programs, state-furnished transportation systems, state school assistance programs.
- Uncertainty affecting construction work force size and timing from factors such as strikes, weather, supplier failures, cash flow problems, and regulatory delays.

36.69 The description of the affected environment (socioeconomic) or baseline in the DES is largely what it has been. Instead, baseline should be what it may be, expected to be during construction and operations, probably with alternate assumptions or scenarios to allow for uncertainty about the state of society in the impact areas over the next several years.

36.70 The baseline also omits many subject areas vital for estimating (and costing) socioeconomic impacts. It should include:

- Fiscal analysis of the two major impacted jurisdictions: Rangely and Vernal.
- The industry and occupational structure of the impact areas, clearly identifying the basic industries (which support the economy) and their employment, and the local service industries and their employment. This is essential for estimating employment multipliers.
- The state of society as it may exist in Dinosaur, a community very vulnerable to costly rural sprawl and slum type development like that in Wamsutter, Wyoming.

Other omissions and errors detailed later should be corrected to consistently and adequately describe the "affected environment" at the time it is being affected. Otherwise, the effects or impacts of the Moon Lake project cannot be assessed.

36.71 2. Deseret's potential socioeconomic mitigation measures are described in general fashion in Appendix 11 to the DES, not in the main text under Section 2, Description of Alternatives, as required by the CEQ regulations. The only main text reference to mitigation in that section is a general commitment to "busing workers from Vernal and Rangely to the plant site."

The Appendix 11 mitigation possibilities are alluded to noncommittally as measures Deseret "may or will support," and further qualified

36.71 (cont.) by saying they are "not sufficiently quantified or committed to alter the analysis of socioeconomic impacts."

This is a frank statement of the inadequacy of the DES as a document providing information for deciding among alternatives, but it does not reduce the need to bring the Statement up to adequacy. This will involve:

- Improving the baseline (discussed above).
- Dealing adequately with uncertainty and improving the assessment of potential impacts (discussed next).
- Calibrating mitigation approaches for each alternative to best deal with the impacts associated with that alternative, and describing their effectiveness in avoiding what must otherwise be considered unavoidable adverse impacts. Only then can the alternatives be compared for decision-making.

36.72 3. The primary indicator of potential socioeconomic impacts, the estimate of locational distribution of incremental population caused by the project is Table 4-11 of the DES, on page 275. There is no description of the analysis underlying this estimate, except for a reference to a Burns and McDonnell report which has not been made generally available.

Furthermore, there is no qualifying statement about the extreme uncertainty underlying any such single forecast of complex human behavior (the selection by many different people, whose characteristics and tastes are unknown, of where they will live at a future time under circumstances not now known). Instead, there is a statement saying that these estimates are considered to be accurate "within ± 10 percent of the actual" future results.

To examine the validity of this statement, and of most of the socioeconomic impact assessment in this DES, both the reliability of the input data and of the analytical methodology should be reviewed. Sequentially, several factors must be quantified or related:

36.72 (cont.)

(a) The size and timing of the construction and operating work forces.

(b) The proportions of local and nonlocal hiring of (a) above.

(c) The distribution of nonlocal hires between single status and family status.

(d) The size or size distribution of families of nonlocal family status hires.

(e) The multipliers for estimating new local service employment induced by the construction population increment and and the operating force increment, and the family size characteristics of the new local service job holders.

(f) The distribution relationship among different communities of the construction work force population, and the local service population, under presently unknown conditions of demand and supply of housing, schools and facilities, and amenities desired by people of unknown preferences who will come into the area.

Further examination of actual experience with these variables will indicate the level of uncertainty that should be attached to any single estimate of incremental population distribution. This can be contrasted with what was evidently done in this DES.

36.73 (a) Construction work forces for recently built steam power plants are typically underestimated by 40% to 60%, as shown in the following table. The possibility of this should be reflected in the DES.

ACTUAL VS. PROJECTED
CONSTRUCTION WORK FORCE PEAK

Case Study	Actual Peak		Projected Peak		Difference	
	Number	Month/Year	Number	Month/Year	Number	Months
(1) Coal Creek	2,113	July-Sept. 1978	980	1978	+1,133	-
(2) Clay Boswell	1,560	June 1979	900	Mar. 1979	+660	3
(3) Boardman	1,482	Sept. 1979	760	May 1979	+722	4
(4) Laramie River	2,609	July 1979	2,076	Sept. 1979	+533	2
(5) Newton	1,435	May 1977	N/A	N/A	-	-
(6) Fayette	867	Oct.-Dec. 1978	292	1978	+575	-
(7) Bellefonte	4,350	May 1979	2,300	Feb. 1978	+2,050	16
(8) Wyman	680	Nov. 1977	675	May 1977	+5	6
(9) Homer City	1,271	Mar. 1977	N/A	N/A	-	-
(10) San Onofre	4,000	Oct. 1979	3,120	Feb. 1979	+880	8
(11) Coronado	2,613	Sept. 1978	1,660	1978	+953	-
(12) Cholla	1,423	Apr.-June 1978	500	1975	+973	36

Source: J.S. Gilmore, et al., interviews and personal communications.

36.74 (b) The assumption on local hiring of construction workers is specified in the Burns and McDonnell report, p. IV-8, at 30% local hiring, or a peak of 250 locally hired construction workers. This will be very difficult, since the condensed manning table (II-1, p. II-4) shows peak employment of only 67 laborers. The others are skilled tradesmen, primarily boilermakers, electricians, and steamfitters. On a power plant project, a high proportion of these must be journeymen--even if the project is built on a non-union basis. There is no indication that many people in the Vernal-Rangely region can qualify for these jobs, and the DES notes the very low historic levels of unemployment in the two counties.*

If the job is done on a union basis, hiring will be primarily through building trades locals from Denver and Pueblo locals if Colorado contractors dominate or in Central Utah if Utah contractors win the job.

Unless the construction manning tables can be reconciled with a skills inventory in the impact area, to justify the 30%, the local and non-local hires should be estimated on a more realistic basis, resulting in greater incremental population.

36.75 (c) The proportion of nonlocal construction workers bringing families depends on such factors as where they are recruited from, availability of housing and amenities, and--most important--the availability of a man-camp of a quality to induce married men to leave their families and live on single status during the job. The weekly commuter living on a single status is becoming increasingly common.

36.74 (cont.) *Mountain West Research, Construction Worker Profile - Final Report (Billings: Old West Regional Commission, 1975), p. 15. In the only analogous project reported (first power plant unit in a community, early in construction), Wyodak, local hires were 3.3%.

36.75 (cont.) The population distribution should be recalculated for an alternative distribution reflecting the potential man-camp mentioned in Appendix 11 of the DES.

(d) Given the range of family sizes shown in the Construction Worker Profile, the sensitivity of the estimates to various family sizes.

36.76 (e) There is no documentation of the basic-to-local service employment multipliers. The construction multipliers are similar to those found in the Construction Worker Profile. However, other EIS's done for oil shale and coal development in the region have shown higher multipliers from operating work forces (the Uintah Basin study for White River Oil Shale shows an operating multiplier of 1.0 to 1.5).

Unless the use of justifiedly analogous multipliers can be documented, employer surveys should be taken to justify the multipliers, and local service employment should be recalculated.

36.77 (f) A so-called gravity model is used to distribute the incremental population. Such a model can offer a first approximation of locational preference of the population (analogous to "demand") but it ignores constraints on living in the various communities, e.g., shortages of utilities, school capacity, housing, etc., and thus has no factor analogous to "supply." The model, by itself, is deceptive in that it ignores mitigation efforts and their capacity-building or supply augmenting effect.

Even as a first approximation, the Burns and McDonnell report misapplies the gravity model. It uses the historic baseline population for estimating its attractor figures instead of the population

36.77 (cont.) relationships expected to exist in the "affected environment" when the in-migrating population arrives.

In addition, the first-approximation distributions should be adjusted to show the variation inherent in alternate situations of weekend commuting or varying degrees of change in attractiveness not indicated by population.

Specifically, the gravity model should be recalculated using appropriate Rangely and Vernal 1981 and 1984-85 populations, e.g., the "without project" figures in Table 4-12, p. 275 of the DES. At least three scenarios should be used: with man-camp, without man-camp and with augmented attractiveness of Vernal (reflecting eased constraints) and with augmented attractiveness in Rangely. These will offer a range within which mitigation needs and potential effectiveness can be judged, and preparation made to handle the population most cost-effectively and satisfyingly for the newcomers and the present residents.*

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*It must again be emphasized that the gravity model is not in itself precise. See Erik J. Stenehjem, "Estimating In-Migrant Settlement Patterns: A Review and Evaluation of Models," Argonne, Illinois: Argonne National Laboratory, 1979; and F. Larry Leistritz, "Review of Socioeconomic Impact Assessment Models," in Gilmore, et al., op. cit. Leistritz (an author of a gravity model-type technique cited in the Burns and McDonnell report) says of gravity models:

> This technique has been widely used in urban areas. However, its usefulness in projecting settlement patterns in sparsely populated areas is questionable. This approach does not account for supply constraints (e.g., for housing or community services). Recent analyses suggest that gravity models calibrated using data on actual settlement patterns may prove useful although their accuracy may vary among site areas. Inclusion of additional variables to specifically measure community attractiveness may improve the efficacy of these models.

36.77 (cont.) In summary, the first step in developing an adequate impact assessment of the Moon Lake project is to recalculate the range of population increments to the various communities under specified scenarios and taking proper account of uncertainties. The only alternative appears to be the "worst case" analysis specified in 40 CFR 1502.22, which would be of little value to anyone. Once the ranges of population distributions are estimated, the impact assessments and mitigation designs required by the regulations can be prepared.

36.78 4. Probably the most significant omission of adverse impacts is the lack of analysis of fiscal impacts on Rangely and Vernal. They are the local governmental jurisdictions described as hosting much of the population increment created by the project. Therefore, they must pay for the facilities and services required by the new population. The forecasting of both these costs and the means of raising revenues to cover them is an essential part of an impact assessment.

Other jurisdictions are handled superficially, including the two counties and the school districts serving Rangely and Vernal. Recent per capita county expenditures are noted, but their significance is not explained. Since these are the only cost indicators used, it is interesting to compare their magnitude ($700-1,000 per year, not differentiated between capital and operational maintenance) with the Colorado standard $10,800 per capita capital cost and $1,020 per capita annual operational maintenance costs for local government serving new population in Western Colorado communities.*

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*Division of Impact Assistance, Colorado Department of Local Affairs, Fourth Annual Report, Appendix A (Denver: State Capitol, 1981), pp. 19-44.

36.79 Other omissions include discussion of impacts on retailing and service capabilities and human services, as well as effects on communities or subject areas mentioned earlier in these Comments. Many of these topics are least superficially covered in the Northwest Colorado Coal regional statement; a review of that material would have indicated the need for these analyses and permitted some reference to environmental statement work already done (the concept of "tiering").

36.80 The description of adverse socioeconomic impacts, as mitigated, should be completed, in adequate form, for the final environmental statement.

Detailed Comments

36.81 p. 14 Summary--Socioeconomics
". . . Rangely would have the tax base of the Deserado Mine."

This is an incorrect statement. The mine's location is not within Rangely's incorporated limits. While Rio Blanco County would receive direct tax benefits from the mine, Rangely would not have these revenues to offset shortfalls resulting from the project-induced population growth.

36.82 p. 24 Chapter 1--Generation Planning
"Cancellation or delay of the Moon Lake power plant beyond 1985 would adversely affect Deseret's ability to provide adequate economic power and energy to its members in view of the June 1, 1979, Utah Public Service Commission Order."

Presumably, the intent of this statement is to demonstrate the need for the Moon Lake facility since it benefits Utah customers by providing them electricity (regardless of its location). However, the State Engineer, Utah Department of Natural Resources, Division of Water Rights, maintains that the benefits to Utah residents of a Colorado-located facility do not warrant approving appropriation of a Utah water right for uses in Colorado (letter in Appendix 2, pg. R-5). The State Engineer further states that the only possible benefit of such a located facility would be the possibility of some jobs in Colorado for Utah residents. This appears to be a contradiction as to the need and benefit of the facility, at least as defined by two different Utah agencies.

36.83 p. 88-89 Chapter 2--Work Force Projections for Power Plant and Raw Materials Supply Systems

Tables 2-5 and 2-6 (Peak Quarterly Employment) are not sourced. Furthermore, the text does not mention that the employment figures presented are subject to some degree of uncertainty. Case studies of power plant employment estimates have shown that these projections are generally understated as shown in data presented below. Since employment numbers drive the rest of the impact assessment categories, it is important that at least potential variances be mentioned and incorporated in other affected impact forecasts.

EXHIBIT II. ESTIMATED VERSUS ACTUAL PEAK
CONSTRUCTION WORK FORCES ON RECENT
COAL-FUELED GENERATING STATION PROJECTS

Plant (and State)	Estimated Peak	Actual Peak
Antelope Valley (N.D.)	840	1,370
Boardman (Ore.)	800	1,470
Clay Boswell (Minn.)	900	1,560
Coal Creek (N.D.)	980	1,880
Coyote (N.D.)	1,020	1,060
Jim Bridger 1 & 2 (Wyo.)	1,200	3,200
Jim Bridger 4 (Wyo.)	1,700	900
Laramie River (Wyo.)	1,390	2,220
White Bluff (Ark.)	1,100	1,900

Source: "Socioeconomic Impact Management: Are Impact Assessments Good Enough to Help," John S. Gilmore, Denver Research Institute, Denver, Colorado, paper presented at Conference on Computer Models and Forecasting Impacts of Growth and and Development, Jasper Park Lodge, Alberta, April 21, 1980. See also Robert B. Braid, Chronic Under Projecting of Work Forces at Nuclear Power Plants, Oak Ridge, Tennessee: Oak Ridge National Laboratory, 1980.

36.84 p. 132-133 Chapter 2--Table 2-13: Comparative Analysis Summary

Local Government Impacts--Taxes and finances are discussed only as they relate to the counties. The financial status of the municipalities are ignored when, in fact, they will be receiving the population-related impacts without receiving any direct revenue benefit from any of the Moon Lake facilities. This omission should be remedied in appropriate detail since this is a major area of adverse impacts.

36.85 p. 184 Chapter 3--Table 3-9, and
p. 187 Chapter 3--Transportation

The transportation section contains no discussion of accident data, highway sufficiency information, or historical trends in describing the baseline situation. No map(s) depicting highway volume data, either present or historical, is presented so that an overall picture of the area's traffic patterns can be determined. Furthermore, no mention is made of the Rio Blanco County road running southwest from Colorado Highway 64 to the Colorado-Utah State Line and there joining the Uintah County Road to Bonanza. Since this road affects access to either plant location and various municipalities, it also affects potential residential patterns and should be discussed.

36.86 p. 189-201 Chapter 3--Socioeconomics

In general, the socioeconomic section does not place enough emphasis on the municipalities to be impacted. For example, baseline financial data on the municipalities is almost nonexistent.

County statistics are often used as indications of like conditions in the municipalities without potential differences being noted or any municipal statistics being presented. The justification for doing so in Uintah County is somewhat stronger given that the Vernal Census Division population in 1970 was 73.5% of the county population. However, in Rio Blanco County, Rangely is geographically isolated from the remainder of the county (some 59 miles from Meeker, the county seat) and the Rangely Census Division population was only 48.9% of county population in 1970. More effort should be made to distinguish individual municipal characteristics and greater data collection efforts should be made at the municipal level.

The data presented varies considerably by year ranging from 1970-1980. No attempt has been made to provide comparable data

36.86 (cont) by year by jurisdiction. For example, the budgetary statement relating to Rio Blanco County uses 1977 and 1979 data (p. 191), while the statement concerning Rangely uses 1977 and 1978 data (p. 191); and, no growth rates are given for the municipalities to compare with the county growth rates provided (p. 189).

Very little of the information presented gives enough data on an annual basis to discern any historical trends. For example, unemployment and labor force rates are identified for 1979 only, while income data are presented for 1970 and 1975.

36.87 p. 189 and p. 191 Financial Resources and Institutions

There is no forecast of financial conditions for the counties or the two municipalities. No budgetary detail as to sources of revenues or categories of expenditures is provided for any jurisdiction, nor is there any indication as to assessed valuation, bonded debt, or mill levies. This lack of detail, historical data, and forecasts makes it impossible to assess the present or expected financial condition of the counties and/or the municipalities. Since the municipalities will not receive any direct tax revenues from any development such as the Moon Lake Project, it is important that the data needed to assess the municipal financial status be provided.

The per capita expenditure figures given for each county are not explained. No indication is given as to what expenditure categories comprise these figures, nor are the operating and capital expenditure components identified. These are questionable figures, at best, given that they indicate only one year's per capita expenditure which may or may not be indicative of future expenditures. Further, the Rio Blanco per capita number used is not the per capita number computed from the Rio Blanco County budget in Burns and McDonnell 1979a which is the source of the background data for most of the socioeconomic sections. No explanation is given as to why these figures differ (1979 Rio Blanco per capita expenditures $821.80, p. III-70, Burns and McDonnell). Since only 1977 data are given for Uintah County in Burns and McDonnell (p. III-20), no comparisons can even be made of Uintah's per capita expenditures.

36.88 p. 190 and p. 191 Personal and Per Capita Income

There is no discussion or information, present or historical, presented on the contribution to income of each economic sector (e.g., agriculture, manufacturing). Furthermore, the relative importance of basic income which supports the rest of the economy is not mentioned or its components identified.

36.89

p. 190 and p. 192 Labor Force and Employment

There is no discussion of the economic base which supports the municipalities, and very little given on the county level. No data, present or historical, are provided on employment by sector, nor are the basic employment components identified. The discussion does not detail any forecast of future employment potential.

36.90

p. 191 and p. 193

The statements concerning percent of labor force which worked less than 250 days annually for each county are not dated. These statistics come from the 1970 Census and are presumably being made to imply that there exists a large amount of underemployed labor which could be locally available for such projects as Moon Lake. However, given the data are from 1970, much of that potential underemployment is likely to have been used up in the expansion of natural resource development in both counties. More data collection effort is needed to assess the present availability and existence of a local labor pool.

36.91

p. 195 and p. 197 Education

There are no data presented on the financial condition of the school districts with the exception of one statement indicating bonded debt for the Uintah District only (p. 195). No forecasts of the future financial condition of either district are presented.

Student enrollment projections for each district are displayed without indicating how or under what assumptions these projections are made. It would be important to know if these projections are based on normal growth or anticipate further natural resource development.

It is also difficult to reconcile these projections with population projections presented for only three years for each municipality without the Moon Lake Project on page 275. It appears that while municipal population estimates include some component of additional growth, the school projections which are to indicate adequacy of facilities do not. Neither projections list assumptions used.

Population/ Enrollment Estimates	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86
Vernal	8,750(1981)			11,025(1984)	12,555(1985)	
Growth Rate from 1980-81	--	--	--	26%	43.5%	--
Annual Growth Rate	--	--	--	--	13.9%	--
Uintah School Dist.	5,164	5,330	5,374	5,550	5,667	5,898
Growth Rate from 1980-81	--	3.2%	4.1%	6.5%	9.7%	14.2%
Annual Growth Rate	—	3.2%	.8%	2.3%	3.0%	4.1%
Rangely	3,700(1981)			9,300(1984)	9,100(1985)	--
Growth Rate from 1980-1981	--	--	--	151.4%	145.9%	—
Annual Growth Rate	--	--	--	--	(2.2%)	—
Rio Blanco School District	610	635	660	710	760	814
Growth Rate from 1980-81	—	4.1%	8.2%	16.4%	24.6%	33.4%
Annual Growth Rate	--	4.1%	3.9%	7.6%	7.0%	7.1%

36.92

p. 194-201 Community Services, Quality of Life

There is no discussion of social services and other human services usually provided at county or municipal level (e.g., mental health, alcoholism counseling, etc.).

36.93

p. 199-200 Quality of Life

There is no indication of anticipated future changes to the existing environment given anticipated oil shale and other natural resource development.

36.94 p. 201 Quality of Life

Crime statistics are provided for only one year on a county level. There are no data presented from which to make historical comparisons nor any statistics presented for any other entity for comparison purposes, such as state data.

36.95 p. 201 Chapter 3--Secondary Influence Zone

The zone of secondary influence is described for recreational purposes only. Shopping patterns should be used to describe a zone of expected secondary economic effects.

36.96 p. 205 Chapter 3--Secondary Influence Zone, Recreation

While this section names several recreational areas to be potentially affected, no visitor days information is presented in order to make a judgement of this determination. There is no mention of how any of the tourist businesses, for example at Dinosaur National Monument, may be affected by increased development and population. The sites and capacity determinations listed in Appendix 18 (p. R-109-111) are only for campgrounds.

36.97 p. 270 Chapter 4--Land Use, Transporation

Since no baseline data were provided on accident ratings or highway sufficiency, statements concerning changes in these cannot be interpreted by the reader. Data are presented on increased volumes, but is limited to trucking and no mention is made of worker or other passenger traffic. Likewise, no mention is made of the potential impacts to tourism or recreational facilities from the projected truck traffic on even just the major highways under this transportation alternative.

36.98 p. 271-303 Chapter 4--Socioeconomics

In general, since few if any projections were made of baseline socioeconomic conditions, no reasonable determination of the cumulative impacts, including those of the Moon Lake facilities, can be made.

36.98 (cont.)

There are a number of elements missing from this socioeconomic section which further hinders assessment of the impacts. These include: no capital investment given on the Moon Lake facilities for estimating tax revenues, no occupational mix for needed employees specified for purposes of determining if area labor could supply the necessary skills, no income projections for the area to determine any potential benefits from the project, no projections of how employment and occupation structures might change with the addition of direct and indirect project-related employment, and no description of how social services (e.g., mental health, counseling) might be affected.

36.99 p. 271 Employment Projections

Table 2-5 referenced in this section gives peak employment by quarter without any annualized figures. The number given as peak construction employment on page 271 (1,072 construction workers) does not appear on that table. This leads to confusion as to which employment numbers are going to be used for the analysis and the source of such estimates.

36.100 p. 271 Employment Projections

The statement "A total of 172 indirect jobs are expected . . ." is not sourced nor are any of the assumptions, including the multiplier, used to compute this number given. Furthermore, no comparable number of indirect jobs related to construction employment is given.

If it is assumed that the 172 indirect jobs figure came from Burns and McDonnell 1979a, then several factors must be noted.

- Burns and McDonnell, Figure IV-3 (p. IV-12) shows that the 172 indirect jobs were obtained from a direct employment peak figure of 454, not 474.

- The same figure shows a multiplier of .42 and a nonlocal hiring assumption of 90% to arrive at the 172 indirect jobs.

Without additional information the numbers in the Burns and McDonnell document and the ones in the DES cannot be reconciled, nor can any opinion be formed about the reasonableness of the employment projections.

- It should also be noted that the employment numbers and schedule used in the Burns and McDonnell 1979a document, p. II-9 and II-11, and the employment table presented on p. 88 of the DES (which is not sourced) are not the same. Therefore any references to the Burns and McDonnell report must be carefully checked to determine which set of employment

36.100 (cont.) figures are driving the impact category being analyzed. If the Burns and McDonnell document has been amended in some way, this should be mentioned at least in the reference section to avoid confusion in making comparisons with the impact statement. The tables from each document mentioned follow this page.

p. 274 Population Projections and Residential Distribution

36.101 There are no assumptions or methodological procedures stated for going from employment projections to population estimates to residential distribution. Table 4-11 (p. 275) lists the source as Burns and McDonnell 1979a. A copy of the table actually contained in that document is presented following this page. The distribution is not the same in both tables. It is unclear where the supporting material for the table on p. 275 is located.

The same is true for information contained in Table 4-13 (p. 276), Table 4-15 (p. 277), and Table 4-16 (p. 279).

p. 274 Population Projections and Residential Distribution

36.102 Reference is made to population projections contained in Tables 4-12 and 4-14 without giving any indication of the assumptions upon which these projections are based. Without more detail and projections on an annual basis, no reasonable determination of cumulative impacts can be made.

p. 277 Table 4-15

36.103 This table really represents housing need rather than demand. Demand in an economic sense is defined as money available for purchase of the particular item in question. Since the financial difficulties of buying new housing in the impact areas has been previously described, it is doubtful that amount of single family homes shown will be built which implies an understatement of the number of mobile homes. These problems need to be further discussed and the assumptions concerning the procedure used to determine housing projections specified. Housing preference, housing demand, and housing supply (as constrained) need to be differentiated and estimated.

p. 281 Law Enforcement

36.104 The standard of 1.5 officers per 5,000 population is questionable for a sparsely populated rural area. Standards of 2 per 1,000 (source: Fourth Annual Report to the Colorado State Legislature, 1981, prepared by Division of Impact Assistance, Department of Local Affairs), and 2.27 per 1,000 (source: EPA Action Handbook,

TABLE 2-5

Peak Quarterly Employment: Unit 1, Deserado Mine, and Railroad

		Plant		Mine and Railroad		
Year	Quarters	Construction	Operation	Construction	Operation	Total
1981	1	50	2	--	--	52
	2	100	2	30	5	137
	3	100	2	135	16	253
	4	225	2	150	19	396
1982	1	225	2	150	23	400
	2	225	2	335	29	591
	3	300	6	260	130	696
	4	350	7	200	136	693
1983	1	450	23	150	168	791
	2	550	25	100	172	847
	3	633	56	--	174	863
	4	633	61	--	190	884
1984	1	750	61	--	192	1,003
	2	750	83	--	202	1,035
	3	633	120	--	203	956
	4	300	120	--	271	691
1985	1	75	120	--	275	470
	2	--	120	--	354	474
	3	--	120	--	354	474
	4	--	120	--	354	474

Table reproduced from Draft Environmental Impact Statement on the Moon Lake facilities.

TABLE II-2
MOON LAKE POWER PLANT
PEAK QUARTERLY WORK FORCE
ONE AND TWO UNITS

ear	Quarter	Unit 1 Construction	Unit 1 Operation	Unit 1 Total	Unit 2 Construction	Unit 2 Operatio	Unit 2 Total	Total Pla Work For
1980	3	50		50				50
	4	100		100				100
1981	1	100		100				100
	2	225		225				225
	3	225		225				225
	4	225		225				225
1982	1	300		300	50		50	350
	2	350		350	100		100	450
	3	450	8	458	100		100	558
	4	550	19	569	225		225	794
1983	1	633	32	665	225		225	890
	2	633	48	681	225		225	906
	3	750	68	818	300		300	1118
	4	750	100	850	350		350	1183*
1984	1	633	100	733	450	8	458	1191
	2	300	100	400	550	19	569	969
	3	75	100	175	633	32	665	840
	4		100	100	633	48	681	781
1985	1		100	100	750	68	818	918
	2		100	100	750	100	850	950
	3		100	100	633	100	733	833
	4		100	100	300	100	400	500
1986	1		100	100	75	100	175	275
	2		100	100		100	100	200

*Each unit peak construction workforce occurs during separate months resulting in a maximum total workforce of 1183 rather than 1200

Table reproduced from Burns and McDonnell report 1979.

MOON2.SE2

TABLE II-3

Deserado Mine and Cónvoyór Peak Quarterly Work Force For Cónstruction and Operation

Year	Qtr	UNIT 1 CONSTRUCTION Mine	UNIT 1 CONSTRUCTION Cónveyor	UNIT 1 OPERATION Mine	UNIT 1 OPERATION Cónveyor	Unit 1 Tótal	UNIT 2 CONSTRUCTION Mine	UNIT 2 CONSTRUCTION Cónveyór	UNIT 2 OPERATION Mine	UNIT 2 OPERATION Conveyór	Unit 2 Tótal	Two Total
1980	3											
	4											
1981	1	30		5		35						35
	2	85		16		151						151
	3	160	100	19		279						279
	4	235	160	23		418						418
1982	1	100	100	29		229						229
	2	50	50	130	15	245						245
	3			136	15	151						151
	4			153	15	168						168
1983	1			157	15	172						172
	2			159	15	174						174
	3			175	15	190						190
	4			177	15	192						192
1984	1.			187	15	202	20		43		63	265
	2			188	15	203	50		43		93	296
	3			256	15	271	75		92		167	438
	4			260	15	275	100		92		192	467
1985	1			339	15	354	150	25	138	10	323	677
	2			339	15	354	100		149	10	259	613
	3			339	15	354	50		222	10	282	636
	4			339	15	354			230	10	240	594
1986	1			339	15	354			230	10	240	594
	2			339	15	354			230	10	240	594

* * * * *

Table reproduced from Burns and McDonnell report 1979.

36.110 p. 298 Quality of Life, Public Attitudes

There is no documentation for this statement. In communities with a great deal of religious and cultural homogeneity, an influx of new residents with different backgrounds and different recreational outlets has the potential for creating an unfavorable response from existing residents.

36.111 p. 298-302 Chapter 4--Cumulative Socioeconomic Impacts

If the omissions and corrections previously noted are adequately addressed, it may be possible to better integrate, assess, and identify the cumulative impacts on the areas to be affected by Moon Lake Project.

APPENDIX C

MEMORANDUM OF UNDERSTANDING
Between
Board of County Commissioners, Rio Blanco County, Colorado
and
State Director, Bureau of Land Management
U. S. Department of the Interior

This Memorandum of Understanding, made and entered into by and between the Board of County Commissioners, Rio Blanco County, Colorado, and the State Director, Bureau of Land Management, Colorado, acting pursuant to the Federal Land Policy and Management Act of 1976, National Environmental Policy Act of 1969, Title IV of the Intergovernmental Cooperation Act of 1968, and the Local Government Land Use Enabling Act of 1974, as codified at §29-20-105, C.R.S. 1973; §29-1-201 et seq., C.R.S. 1973; and §30-11-102(1)(d), C.R.S. 1973; and all amendatory acts thereof or supplemental thereto, and such other legislation and regulations as may apply, WITNESSETH, that:

WHEREAS, Rio Blanco County (hereafter referred to as the County) has adopted a County Master Plan, zoning, and other land use control regulations to guide development of all lands in the County, and

WHEREAS, Bureau of Land Management (hereafter referred to as BLM) has developed management framework plans to guide management and development of public lands, and

WHEREAS, Land use or development decisions by either party may become constraints on similar decisions by the other party, and

WHEREAS, Both the County and BLM desire to coordinate their respective planning and decision processes in order to achieve maximum benefits from available resources, to reduce duplication of effort and to attain better overall coordination of land management throughout Rio Blanco County,

NOW, THEREFORE, it is agreed that:

I. Each party will:

  A. Cooperate in land use decision-making, including consultation in land use decisions and in preparation of land use plans, including, for example, County master plans and BLM management framework plans, including any amendment to or revision of said plans.

TABLE IV-6

PEAK RESIDENTIAL DISTRIBUTION BY YEAR
1 UNIT BONANZA

Community	1980 No.	1981 No.	1982 No.	1983 No.	1984 No.	1985 No.
Vernal	111	499	949	1282	1164	628
Maesar	18	81	150	206	187	101
Rangely	29	419	663	664	651	768
Dinosaur	9	70	120	138	131	115
Jensen	9	37	74	102	93	49
Meeker	0	69	83	58	60	107
Other	9	62	107	128	119	93
Total	185	1237	2146	2578	2405	1861

2. PERSONAL INCOME

The proposed construction of the Bonanza Station would have a significant economic effect on area communities. Throughout construction (approximately 4 years) an estimated $41.4 million would be paid in the form of wages to construction workers (see Table IV-7). The average plant construction worker's income level is estimated to be approximately $23,344 per year. For mine workers the average would be approximately $24,708. This is based on an average hourly rate of $11.18 for plant workers and $11.89 for mine workers which is subject to inflationary pressures and therefore can be expected to escalate overtime. This change in the area's worker income would result in not only increased personal income tax receipts but also in additional revenues from personal property taxes, sales tax, gasoline, cigarette tax, alcohol tax, and other miscellaneous revenue generating assessments.

Page reproduced from
Burns and McDonnell report 197

36.104 (cont.) prepared by Briscoe, Maphis, Murray & Lamont, Inc., 1978) have been suggested in other reports and are believed more realistic. The 1.5 officer standard seriously understates the need for additional personnel.

p. 281 Health Facilities and Personnel
". . . hospitals are currently being used at 50 and 60 percent of capacity, respectively."

36.105 This statement contradicts the usage figure presented for the Rangely Hospital of 20%, p. 199. There are no sources given for either statement.

p. 281 Local Government Impacts

36.106 The problem of impacts crossing state and county lines and the equitable distribution of revenues is mentioned, but the more significant problem of jurisdictional mismatch and municipalities boundaries is ignored. Since the municipalities will not receive direct tax benefits from any Moon Lake facilities, their financial status needs to be documented. This is not done.

p. 282 Local Government Impacts

36.107 Rangely and Vernal will both have to support all new residents without benefit from any of the Moon Lake facilities. The revenues from these facilities will go to the counties, school districts, and the states.

p. 283 and p. 285 Tables 4-20 and 4-22

36.108 The expenditures used in these tables are highly suspect given the low per capita amounts used to generate total expenditures. There is no indication given of what is included in these per capita expenditures nor are the 1979 per capita figures assumed used in the computations necessarily representative of future expenditure needs (1979 Rio Blanco per capita $1,005.87 and 1979 Uintah per capita $725.17).

p. 284-296 Units 1 and 2 Scenarios

36.109 The same comments detailed above apply for the presentation of impacts for this scenario also.

B. Inform each other as far in advance as possible of anticipated plans and proposed activities that might affect either party, but in no case shall such information be provided less than thirty-five (35) days prior to the adoption of such plans or taking place of such activities.

C. Cooperate in development and implementation of specific agreements supplemental to this agreement, including, but not limited to, agreements regarding zoning, subdivision of lands, road construction, maintenance and use, and rights-of-way.

II. The Bureau of Land Management will:

A. Solicit County participation in developing plans, programs, and proposals for management of public lands and consider those views in the decision process. Participation will specifically include analysis of preliminary recommendations (Step 1, MFP) and conflicts, development of recommendations (Step 2, MFP) for adoption of the management framework plan, and all rights to receive notice of and to participate in such planning as are provided by §202(F) of the Federal Land and Policy Management Act of 1976 and regulations adopted pursuant thereto.

B. Provide the County an opportunity to (1) review and comment on applications submitted to BLM that would affect land use or development in Rio Blanco County, and (2) to participate in development of the requisite environmental assessments (environmental statements and environmental analysis reports). Participation will specifically include analysis of land use impacts and analysis of alternatives. Those types of applications the County will review include, but are not limited to, those on Exhibit A, attached hereto.

C. Make available to the County all non-proprietary resource and land use information concerning land located in Rio

Blanco County in possession of BLM and all data from public land inventories maintained under §201(a), (b) of the Federal Land Policy Management Act of 1976 and all regulations adopted pursuant thereto.

D. Insert in all licenses, permits, leases and other such documents granting permission to occupy or use public lands a stipulation requiring all such licensees, permitees, and leasees to exercise the rights granted thereby in conformance to the following Rio Blanco County Ordinances and amendments thereto:

Chapter 100, Mobile Home Park Operations
Chapter 400, Subdivision Regulations
Chapter 500, Building Codes
Chapter 700, Solid Waste Disposal Regulations
Chapter 800, Individual Sewage Disposal Regulations
Chapter 900, County Road Vehicular Restrictions

E. Make personnel available to assist the County in complementary data-gathering and land use planning as is determined by the State Director to be practical within financial, legal, and personnel limitations.

F. To the extent consistent with the laws governing the administration of the public lands, coordinate the land use inventory, planning, and management activities of BLM lands with the land use planning and management programs of the County. In implementing this section, the BLM shall assure that consideration is given to County land use plans that are germane in the development of land use plans for BLM lands, assist in resolving inconsistency between land use plans of BLM and the County, and provide for meaningful public involvement of County officials in land use decisions for public lands, including early public notice of proposed decisions which may have significant impact on County lands.

G. Assure that land use plans for public lands are consistent with County plans to the maximum extent possible under federal law and the purposes of the Federal Land Policy Management Act of 1976.

H. To the maximum extent possible, agree that no lease, grant, or other conveyance of public lands shall exempt such lessee, grantee, or other conveyee from compliance with County land use plans, laws, or regulations which are or may be in effect as of the date of the lease, grant, or other conveyance.

I. At least sixty (60) days prior to offering for sale or otherwise conveying public lands within the County, notify the Board of County Commissioners of such sale or conveyance in order to afford them an opportunity to zone or otherwise regulate, or change or amend existing zoning or other regulations concerning the use of lands prior to such conveyance. The BLM shall also promptly notify the Board of County Commissioners of the patent or other document of conveyance for such lands.

J. Cooperate with the County in the enforcement of the County regulations specified at §II.D. of this Memorandum of Understanding.

K. In the development and revision of BLM land use plans, provide for compliance with all state pollution laws and county regulations promulgated thereunder pursuant to state law regarding air, water, noise, or other pollution standards or implementation plans.

L. Cooperate with the County in mitigating the socio-economic impacts of land use activities on federal lands and with regard to federal mineral rights.

III. Rio Blanco County will:

A. Solicit BLM participation in developing master plans and zoning, or revisions thereto, for lands in Rio Blanco County. Participation will include review and comment on planning and zoning proposals and may include non-voting ex officio membership on the County Planning Commission.

B Provide BLM an opportunity to review and comment on proposals submitted to the County (including the Planning Commission) that involve land use or zoning that may impact public lands. Those types of proposals BLM will review are included but not limited to those located on Exhibit B, attached hereto.

C. Make available to BLM social and economic information in possession of the County.

D. Make County expertise or personnel available for complementary data-gathering, environmental studies, and land use planning as is determined by the County to be practical, recognizing financial and personnel constraints.

E. Unless agreed to the contrary, the County shall not rezone any land described in §II.1. above, after the notification and before the sale therein described.

IV. Timeliness:

Both parties recognize that time is of the essence in performance under this agreement; in some cases it may be critical. Where necessary, reasonable time limits may be set for participation by either party.

V. Nothing in this agreement will be construed as limiting or effecting in any way the authority or legal responsibility of the Board of County Commissioners or the State Director, or as binding either County or the Bureau of Land Management to perform beyond the respective authority of each, or as requiring either party to assume or expend any sum in excess of appropriations available.

VI. Amendments or supplements to this agreement may be proposed by either party and shall become effective upon written approval of both parties.

VII. This agreement shall become effective as soon as signed by the parties hereto and shall continue in force unless formally terminated by either party after thirty (30) days' notice in writing to the other of the intention to do so.

VIII. Each and every provision of this Memorandum of Understanding is subject to the laws of the State of Colorado, Rio Blanco

County, end the laws of the United States, and the regulations of the Secretary of the Interior.

IN WITNESS THEREOF, the parties hereto have ceused this document to be executed, the Board of County Commissioners, Rio Blanco County, and the State Director, Bureau of Land Management, Colorado, on this 5th day of July, 1977.

State Director
Bureau of Land Management
7/5/77
Date

7-5-77
Date

7-5-77
Date

The Boerd of County Commissioners
Rio Blanco County, Colorado
7-5-77
Date

EXHIBIT A

Rio Blanco County will be afforded an opportunity to review and comment on the following types of applications or proposals that may be filed with Bureau of Land Management, including, but not limited to:

1. Rights-of-way for roads, power lines, pipelines, telephone lines, and other rights-of-way projects.
2. Land use planning information (resource inventories, management framework plens, etc.).
3. Environmental assessments and statements.
4. Withdrawals and revocetions.
5. Sale, exchange, lease or other conveynnce of lands.

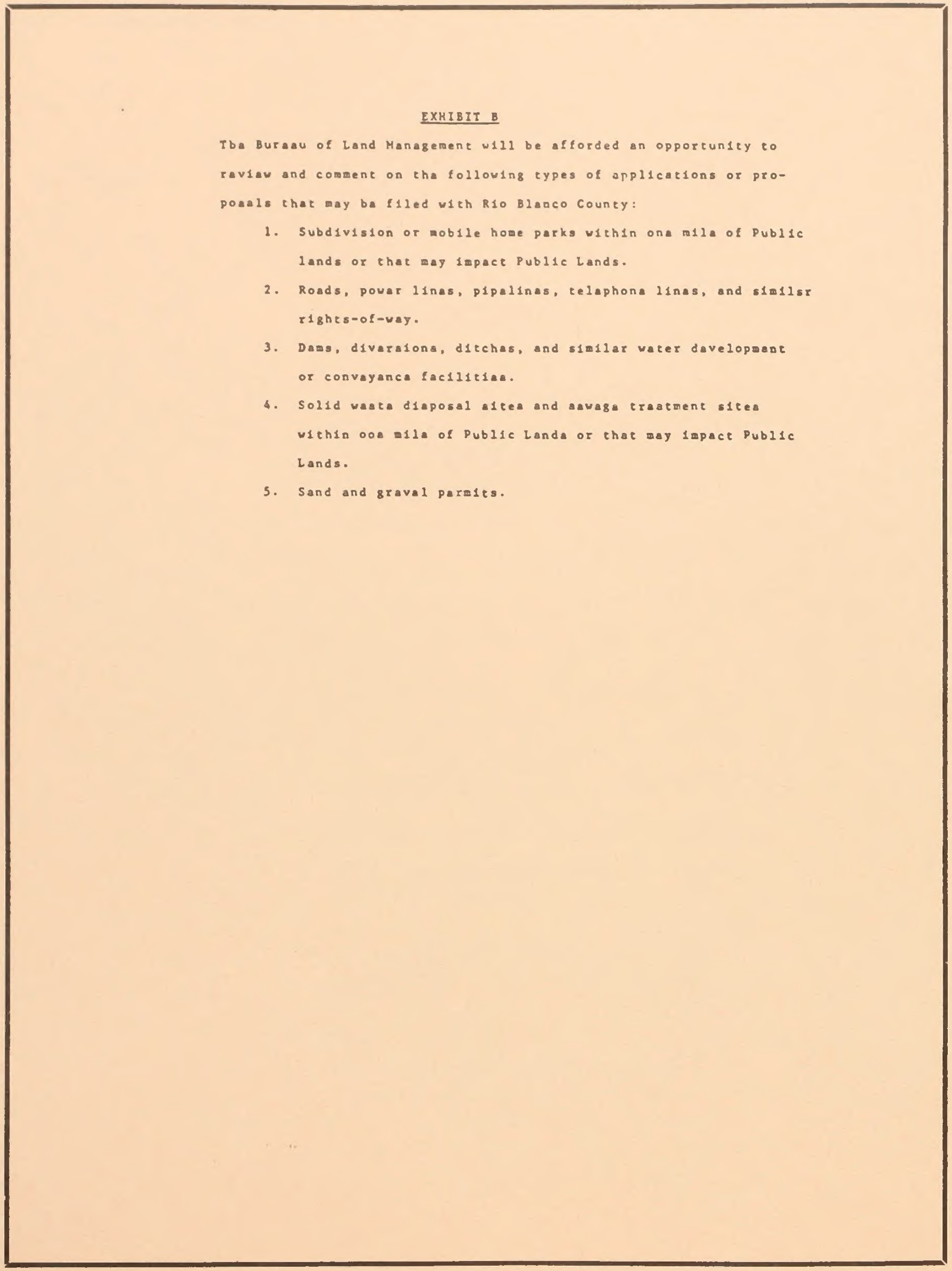
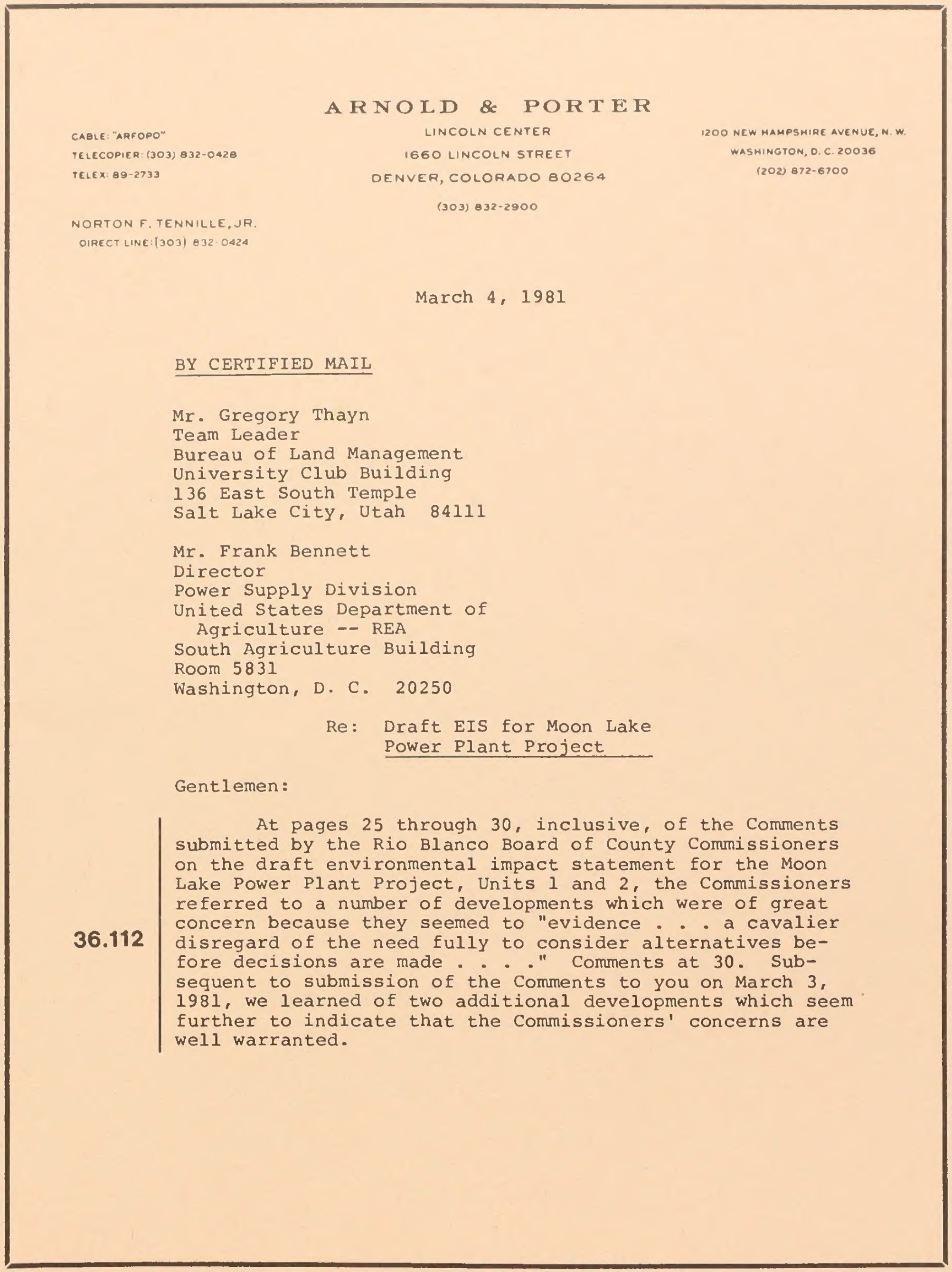


EXHIBIT B

The Bureau of Land Management will be afforded an opportunity to review and comment on the following types of applications or proposals that may be filed with Rio Blanco County:

1. Subdivision or mobile home parks within one mile of Public lands or that may impact Public Lands.
2. Roads, power lines, pipelines, telephone lines, and similar rights-of-way.
3. Dams, diversions, ditches, and similar water development or conveyance facilities.
4. Solid waste disposal sites and sewage treatment sites within one mile of Public Lands or that may impact Public Lands.
5. Sand and gravel permits.



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NORTON F. TENNILLE, JR.
DIRECT LINE: (303) 832-0424

March 4, 1981

BY CERTIFIED MAIL

Mr. Gregory Thayn
Team Leader
Bureau of Land Management
University Club Building
136 East South Temple
Salt Lake City, Utah 84111

Mr. Frank Bennett
Director
Power Supply Division
United States Department of
Agriculture -- REA
South Agriculture Building
Room 5831
Washington, D. C. 20250

Re: Draft EIS for Moon Lake Power Plant Project

Gentlemen:

36.112 At pages 25 through 30, inclusive, of the Comments submitted by the Rio Blanco Board of County Commissioners on the draft environmental impact statement for the Moon Lake Power Plant Project, Units 1 and 2, the Commissioners referred to a number of developments which were of great concern because they seemed to "evidence . . . a cavalier disregard of the need fully to consider alternatives before decisions are made . . . ." Comments at 30. Subsequent to submission of the Comments to you on March 3, 1981, we learned of two additional developments which seem further to indicate that the Commissioners' concerns are well warranted.

ARNOLD & PORTER

Mr. Gregory Thayn
Mr. Frank Bennett
March 4, 1981
Page Two

36.112 (cont.) *First*, on October 30, 1980, Combustion Engineering, Inc. announced that it had been notified of Deseret Generation and Transmission Cooperative's intent to purchase a sulfur dioxide absorption system, worth $23 million, to "be used in conjunction with the 400 MW coal-fired Moon Lake Station Unit No. 1 *in Bonanza, Utah*." (Emphasis supplied.) *See* Attachment A.

Second, on October 14, 1980, Foster Wheeler Energy Corporation announced it had received from Deseret a contract, valued at $50 million, for the "design, engineering, fabrication, and erection of a steam generator for a 400 megawatt electric power plant." Attachment B. According to the press release, "[t]he coal-fired boiler will be Unit 1 at Deseret's new station, *to be located near Bonanza, Utah*." *Id*. (emphasis supplied).

As noted in its comments to the draft EIS, the County is quite concerned "that the entire EIS process, with its purported analysis of alternatives, has not been the open-minded, good-faith exercise required by the National Environmental Policy Act, but rather an unlawful, *ex post* rationalization of a decision already made." Comments at 9. This concern is reinforced by the unreasonable refusal of REA to extend by six days the comment period on the draft EIS, as reflected in Mr. Bennett's letter to me of February 27, 1981.

36.113 The County fully expects that its concerns in this regard, and in all the other regards addressed in the Comments, will be addressed by the Bureau of Land Management and the Rural Electrification Administration before any decision is made.

Sincerely yours,

Norton F. Tennille, Jr. ar

Norton F. Tennille, Jr.
Counsel for the Rio Blanco
Board of County Commissioners

Attachments

PAGE 3

LEVEL 1 - 5 OF 6 STORIES

PR Newswire

ATTACHMENT A

October 30, 1980

DISTRIBUTION: To Financial

LENGTH: 130 words

DATELINE: STAMFORD, Conn., Oct. 30

KEYWORD: Combustion Engineer Con

BODY:

Deseret Generation & Transmission cooperative, Sandy, Utah, has notified Combustion Engineering, Inc., of its intent to purchase a sulfur dioxide absorption system, C-E reported today. Value of the proposed contract is more than $23 million, including delivery and installation of the system.

The pollution control equipment will be used in conjunction with the 400-Mw coal-Fired Moon Lake Station Unit No. 1 in Bonanza, Utah. Operation is scheduled for September 1984, with absorber parts delivery beginning in April 1982

PR Newswire, October 30, 1980

Fuel will be Western Colorado 0.5 percent sulfur coal. System efficiency will be 95 percent SO2 removal using limestone as an additive.

Contact -- D. C. Miller of Combustion Engineering at 203-329-8771

LEVEL 1 - 6 OF 6 STORIES

PR Newswire

October 14, 1980

ATTACHMENT B

DISTRIBUTION: To financial

LENGTH: 330 words

DATELINE: LIVINGSTON, N.J., Oct. 14

KEYWORD: Foster Wheeler Energy Contract

BODY:

Foster Wheeler Energy Corporation has received a contract valued at $50 million from Deseret Generation and Transmission Cooperative for the design, engineering, fabrication and erection of a steam generator for a 400 megawatt electric power plant.

The coal-fired boiler will be Unit 1 at Deseret's new station, to be located near Bonanza, Utah. The natural circualtion unit will produce approximately 3 million pounds of steam per hour at 2,640 pounds per square inch, with superheat and reheat temperatures of 1,005 F. The balanced draft steam generator will be furnished with five Foster Wheeler MBF-type coal pulverizers and fired by 20 Foster Wheeler low NOx burners. The latter units employ special design features to limit the emission of nitrogen oxides (NOx) to well within Federal and local restrictions.

Components of the steam generator will be manufactured at Foster Wheeler Plants at Dansville, N.Y., and Mountaintop, Pa. Commercial operation is scheduled for autumn 1984.

Deseret Generation and Transmission Cooperative was organized two years ago and comprises six rural electric cooperatives which serve owner-customers in Utah and contiguous areas of Wyoming, Colorado, Arizona and Nevada. One of the specific purposes for the organization was to build and operate the new plant. Fuel will come from a nearby mine on lands leased by Deseret near Rangely, Colo.

Foster Wheeler Energy Corporation - the major United States subsidiary of Foster Wheeler Corporation - designs, fabricates and constructs steam generating equipment, process plants and fired heriers for electric utilities, shipbuilders, petroleum refiners, and chemical producers. Foster Wheeler Corporation, the parent company, operates worldwide through 26 subsidiaries. Both corporations are headquartered at Livingston, N.J.

Contact -- Richard G. Strippel or Edward F. Vitolo of Foster Wheeler Energy at 201-533-2679 and 2200, respectively

36.1 BLM and REA consider it appropriate for State and local governments to deal directly with proposed developers in the preparation of detailed socioeconomic mitigation plans and programs. As this is done, BLM and REA utilize, so far as possible, the information and commitments agreed to by the developer in Draft and Final EISs. Appendix 11 of the Draft EIS constitutes Deseret's report on the subject at the time the Draft was issued. Appendix 11 of the Final EIS contains updated information on this subject provided by Deseret.

Deseret proposes to take the mitigative measures contained in Appendix 11 of this Final EIS when and as necessary to minimize the socioeconomic impacts of the proposed project. REA considers such commitment measures appropriate in relation to the impacts so identified. In accordance with REA procedure, REA, as a condition to the advance of guaranteed loan funds, will require Deseret to construct the proposed project in accordance with the Final EIS.

State and local governments have regulatory opportunities (see Appendix 3 in the Draft EIS) which can be used to develop and/or enforce detailed socioeconomic mitigation. Furthermore, local governments are in the best position to define the detail and administer the implementation of such specific mitigation, initially and over an extended period. Local communities and counties are much more familiar with their specific needs and planning programs than are BLM and REA.

The following additional points are pertinent to the BLM and REA position on this matter:

a. Socioeconomic impact predictions in any EIS are not absolute due to the wide number of variables (contractor approach, worker differences, work patterns, technology options, etc.); therefore, further refinement of the approximations in an EIS by direct action by others at the community level is anticipated by Federal decision-makers concerned with the public lands.

b. Socioeconomic impacts occur generally on lands and programs not under the administration of BLM. While BLM can give encouragement to and generally support community and project developer mitigation efforts, BLM does not have the authority to require, through right-of-way stipulations, or detailed socioeconomic mitigation which may or may not be acceptable to State and local program managers and officials.

In conclusion, BLM and REA consider the socioeconomic analysis reflected in the Draft and Final EIS for the Moon Lake power plant project to be sufficient to provide the Federal decision-maker and others with the perspective and general magnitude of socioeconomic impacts. The Final EIS reflects local, state, and project developer's views on the topic, and these also are considered in the Federal decision process. The EIS analysis and the Federal decision does not preempt the need for the potentially affected communities and counties to implement their responsibilities to mitigate, in cooperation with the project developer, the specific, detailed socioeconomic impacts.

36.2 The potential for tax revenue imbalances is noted in the EIS. The subject is further addressed in Responses 62 and 78 to this same letter. See also Letter Responses 31.9 and 1D, and Appendix 11 of the Final EIS.

36.3 For response to that portion of the comment on mitigation, see Letter Responses 1 and 71 of this same letter.

Responses dealing with costs are in Letter Responses 29, 78, 87 of this letter; 31.9 and 1D; 22g.9 and 1D. The responses address the same comments or similar comments in greater detail than found in the comment here.

36.4 See Response 1 to this letter which addresses detailed comments on this same subject. (REA is supplying additional information.)

36.5 See Oral Testimony Response 3.

36.6 See Letter Response 26.2.

36.7 Major issues were identified during scoping and public concern sessions prior to development of the Draft EIS. These issues are treated in the EIS evaluation. The proposal and alternatives are evaluated throughout the document and compared one with the other to avoid or minimize adverse impacts and enhance the quality of the human environment. There would still be some adverse impacts and these are outlined on pages 132 to 159 (table 2-13) of the Draft EIS. The financial costs are compared in Appendix 2D, page R-139.

None of the issues were ignored. They were treated and analyzed based on available data and current state-of-the-art practices. The Final EIS now presents updated and/or additional information on and analysis of several of these issues.

36.8 Comparative financial cost of the alternatives was included in Appendix 2D of the Draft EIS. Inadvertently, this fact was omitted from the "Introduction" section to Chapter 4, but appears in the Final EIS.

The applicant's change in proposal occurred shortly before publication of the Draft EIS, thus resulting in the referenced errors in Table D, Appendix 2D. Table D has been corrected and is included in this Final EIS.

There was no intent to distort the economic advantages of the Rangely site.

36.9 Tables 4-2D, 4-22, 4-32, and 4-34 present cost estimates by county for Rio Blanco and Uintah. While there is no breakdown of those costs within each county, based on the projected population distributions presented in tables 4-23 and 4-25, one can approximate the relative distribution of those costs by community. As noted in Response 75 to this same letter, addition of various population distribution scenarios would unduly complicate the analysis. Likewise, detailed cost distribution would increase the complexity of the document and may not contribute to better Federal decisions.

Community cost information is discussed in general terms in the EIS. Refinement of such data would be pertinent in local mitigation arrangements as described in Response 1 to this letter. See also Appendix 11.

36.10 The difference between impacts of the alternatives is discussed under "Frequency of Visibility Impacts" and "Cumulative Effects" sections of "Air Quality" of this Final EIS. These sections have been modified from the Draft EIS to more clearly delineate differences in impacts from the two alternate sites.

36.11 BLM and REA do not agree with the comment. A conscious effort was made to discuss or present impacts in order of significance. Those items or resources that were identified during scoping and preliminary review by individuals, governments, and agencies, etc., were the ones analyzed. Considerable concern was expressed regarding transmission lines, water quality and availability, mining, power plant siting, air quality, wildlife, and socioeconomic well being.

The transmission system was, and is, of concern, since each powerline could occupy and disturb about 18 acres per mile. On a worst-case basis, for example, unit 1 could disturb 4,732 acres. Since there are seven alternatives and at least 12 ways to get to Mona Substation from Rangely, we were required to analyze about 33,124 acres. Again considering a worst-case situation, unit 2 could disturb 3,942 acres. Three variations for transmission line routes exist, and we were required to analyze about 11,826 acres. In addition, we considered areas sensitive from the watershed, soils, scenic, and special areas standpoint. Transmission systems are of particular concern in concentrated mountain zones over National Forest lands.

36.12 See Response 1 of this letter.

36.13 The purpose of the EIS is not to reiterate the process and requirements of the National Environmental Policy Act Regulations (Federal Register, Nov. 29, 1978).

The fundamental purpose of the EIS is to insure that decision-makers and the public are informed of the environmental consequences of proposed actions before decisions are made and actions taken.

See Letter Response 1 of this letter regarding mitigation of socioeconomic impacts.

36.14 See Responses 1 and 71 of this letter.

36.15 See Response 1 of this letter.

36.16 The analysis presented not only recognizes that there would be cost and revenue imbalances but also provides a measure of the magnitude of these costs/imbalances.

The EIS states that, "use of the Oil Shale Trust Fund is a discretionary action by individual state legislatures to mitigate socioeconomic impacts" (page 31, Draft EIS). The context does not infer that said monies could, would, or should be used to mitigate impacts from the Moon Lake project. (It is noted, however, that the FY 1981 distributions from this fund to Rio Blanco County, Rangely, and Dinosaur total over $4.9 million (over 32 percent of the total Colorado distribution) (Colorado State Dept. of Local Affairs, 1981). It is anticipated the improvements resulting from these distributions will facilitate future growth in general.

The EIS analyzes the impacts of construction of unit 2 of the power plant on a worst-case (i.e, earliest) basis. The construction of unit 2 could begin as early as 18 months following initiation of unit 1 construction.

36.17 The accellerated schedule referred to in Comment 36.16 were considered. BLM and REA acted within Section 1502.22 of the CEQ regulations by providing worst-case analysis based on best available data.

36.18 This response is itemized to match the seven numbered paragraphs of the comment.

(1), (2), and (3) Deseret has hired engineering consultants and awarded supply contracts; however, this has been done at the company's own risk. BLM and REA have formally advised Deseret that the Federal decision will not be made until after the completion of the NEPA process. This is further discussed in Letter Response 26.2.

Moreover, the CEQ regulations, 40 CFR, Part 1506.1(d), and REA Bulletin 20-21:300-21, Part XVII, permit the REA to approve certain actions of loan guarantee applicants, such as entering into commitments for purchase options or making minimal expenditures for long lead time equipment, prior to completing the NEPA process, so long as such commitments or expenditures do not affect the environment. Concerning the proposed project, REA has approved Deseret's request to negotiate contracts to procure such long lead time items as a turbine generator, a steam generator, and a sulfur dioxide absorption system. Such equipment is not considered to be site specific. However, no contracts concerning the proposed project have been approved by REA nor is REA committed to approve such contracts in the future. Actions taken to date by Deseret pursuant to the authority contained in the CEQ regulations and REA bulletin 20-21 have not affected the environment and, when the total costs of a generating plant are considered, the actions amount to only minimal expenditures or involve minimal changes in the event of cancellation.

Although paragraph (1) of the comment may have accurately stated a trade press report, the report itself is inaccurate. Western Fuels Association, on behalf of Deseret, has signed a 3.5 million dollar contract with Stone and Webster for engineering and design work relating to facilities required (i.e., electric railroad and conveyor system) to transport coal from the Deserado Mine to the proposed Bonanza plant site. This contract does not include the fabrication or procurement of equipment for the above mentioned coal transportation facilities.

An expanded discussion of REA's position on the issue of expenditures during the NEPA process is contained on pages 27 through 32 of REA Bulletin 20-21:320-21 dated January 21, 1980.

(4) Page 244 of the Draft EIS indicated that final reviews would be done before a PSD permit was approved. Since the preliminary review, EPA has proposed to issue a permit, completed the final application review, and issued the PSD permit. The State of Utah is currently reviewing Deseret's construction permit application and has not made any formal determinations as of March 10, 1981. Options of the decision-makers are not foreclosed because a PSD permit has been issued for a Bonanza plant. The permit was issued for the Bonanza site because Deseret applied for a permit for that site. Were the company to apply for a permit at the Rangely site instead, based on air quality modeling results, EPA could consider issuing a PSD permit for the Rangely site.

(5) Table 3-1 has been revised for this Final EIS to show particulate data monitored near the Deserado Mine site in Colorado. Particulate monitoring was not done at either plant site. State of Utah monitoring data gathered near Vernal was used to give conservative estimates for background air quality of both plant sites. Visibility modeling was done for both the Bonanza and Rangely sites. On page 248, it is stated that, "Systems Application Incorporated (SAI), conducted a visibility assessment for the Bonanza site.

36.18 (cont.) Burns and McDonnell used the SAI model to assess visibility impacts for the Rangely site." A detailed technical discussion of the results of the modeling is presented in Appendix 22 and a summary is provided on pages 248 to 249 of the Draft EIS.

(6) The Interagency Task Force considered only those alternative sites located in Utah. One of these, Bonanza, was selected as an alternative to be discussed in equal detail with the Rangely, Colorado, site. For a discussion of the criteria used by the Siting Committee, see Letter Response 27.4.

(7) See Letter Response 22g.17 and 26.2.

36.19 In view of the controversial nature of the socioeconomic analysis, BLM has included information on this controversy on page 14 of the Draft EIS. In addition, the preparers of the EIS have requested and received outside, independent appraisals of the socioeconomic analysis.

The projected population distributions are at the heart of the issue; therefore, material describing the model and basic data were sent to Browne, Bortz, and Coddington, Denver; the BLM Colorado State Office; and Dr. W. Chris Lewis at Utah State University. All of these reviewers have experience in socioeconomic studies in the geographic area of concern and were asked to provide a written evaluation. (Copies of their letters are presented in Appendix 24 of this Final EIS.)

Dr. Lewis wrote of the material he reviewed (emphasis supplied):

> "My overall assessment is that the work is competently done and reflects state-of-the-art methods for impact projections. Most important, the work provides policymakers at all levels of government with a data base that is more than adequate for a variety of decisions associated with planning for, and mitigation of, socioeconomic impacts. My only criticism is that in a few places in the text some things are not explained particularly well, but this is a very minor point that could be resolved with minimal editorial work.... To repeat, my overall analysis of the study is that it is competently done, reflects the best available techniques and has resulted in a set of reasonable and highly useful data. While one can quibble with certain assumptions, there is no evidence to suggest that changing any assumption would represent an improvement."

The Colorado State Office of the BLM opinion stated the following (emphasis supplied):

> "Our review indicates that the models used are acceptable and that the assumptions made are reasonable. The methodology employed and the assumptions used tend to be a worst-case analysis, and if anything, overstate population impacts. Therefore, the CSO concludes that the population numbers are acceptable for analysis in the EIS."

On the other hand, the opinion of Browne, Bortz, and Coddington is:

36.19 (cont.)

> "Our overall opinion, based on the limited amount of current data we have reviewed, is that the methodology employed may tend to overestimate population likely to settle in Vernal and subsequently underestimate population impacts on Rangely. The magnitude of these differences is unknown since we have not had an opportunity to perform our own analysis of the area."

In developing their opinion, Browne, Bortz, and Coddington consulted with Mr. John Gilmore, who also participated in the preparation of the Rio Blanco County comments.

Commenters seem to have stated their personal preference in methodology for performing an assessment. However, this does not invalidate the methodology applied in the Draft EIS. For example, they expressed a preference for a generalized cost/revenue analysis as opposed to the specific capacity analysis utilized in the report.

The Draft EIS contains information on work force characteristics, community capacities, etc. The data was taken from the 250-page Burns and McDonnell Socioeconomic Environmental Assessment (referenced as Burns and McDonnell 1979a in the EIS). This document was distributed to local officials in both Rio Blanco and Uintah Counties and is available to the public upon request. It should be pointed out that the above report was prepared with the assistance of a local consultant, Dr. Paul Harmon of the University of Utah, who is familiar with the area in question. Therefore, BLM and REA believe that many of the controversies may stem from incomplete review of the information used in the socioeconomic analysis. The public has had a 30-day opportunity for review of the socioeconomic data in the Draft EIS and a 30-day review of this Final EIS will be allowed.

Also, the Colorado State Division of Impact Assistance has not reached a consensus on the adequacy of the analysis. In Comment Letter 22g from the Division, Randy Russell stated that "...the draft does an adequate job of analyzing the problem..."; while Steve Schmitz, restated Mr. Gilmore's comments (submitted in behalf of Rio Blanco County) and stated that "...the draft is so defective in its analysis of the socioeconomic issues that another draft statement should be prepared...".

BLM believes that conclusive proof of the validity of the study used in the Draft EIS cannot be supplied due to the inexact nature of socioeconomic factors, differing opinions and interpretations among experts, and competition among consultants. It is extremely doubtful that a conclusive statement could ever be reached, regardless of the number of independent experts consulted.

Thus, it is the BLM's and REA's conclusion that the socioeconomic study in the Draft EIS represents an adequate analysis for EIS purposes and that further expenditure of Federal time and resources pursuing this matter is not justified. It is not the position of BLM and REA to interfere with administration of local government and planning. Further State and local action on the subject, in cooperation with Deseret, would be appropriate as discussed in Response 1 to this letter.

36.20 All comments on the Draft EIS are responded to, including those specifically noted in the comment.

36.21 For discussion of the gravity model, see Response 77 of this letter. Related socioeconomic items are found in Responses 1, 19, and 25 of this letter.

36.21 (cont.) The Draft EIS relied on thorough investigation of community attractiveness factors in conjunction with the gravity model. These factors included the availability of retail facilities in Vernal and Rangely, availability of health care, housing capacity, etc. Retail trade patterns have shown that Vernal is the regional shopping and commercial center serving Rangely. These factors support the distribution in the Draft EIS.

36.22 See Responses 19 and 77 of this letter.

36.23 Neither Deseret nor any contractor company would be expected to impose a requirement on its employees as to where they must live.

The Deserado Mine would provide a steady growth to Rangely, not a boom-bust cycle.

36.24 Refer to Letter Response 22g.19.

36.25 Capacities were considered (see reference Burns and McDonnell 1979a in the Draft EIS). Vernal is expected to have sufficient amenities for projected impacts by that time. Sewer, water, and school capacities are only a few of the factors composing attractiveness. However, their influence is usually evidenced more as a limiting factor rather than a positive attraction. In other words, the lack of such facilities may deter people from locating in a particular community, but excess sewer capacity does not necessarily draw people there. This principle is demonstrated in the book Boomtown Growth Management, A Case Study of Rock Springs - Green River, Wyoming (Gilmore and Duff, 1975), which was used in the Burns and McDonnell 1979a report.

This also has been acknowledged, as it pertains to the Town of Rangely specifically, in a CWACOG Memorandum (CWACOG, 1980a).

> "Even with the development of a (oil shale tract) Ca to Rangely Road, it appears that residing in Rifle is the clear preference of both the Ca and Cb Tract workers. Due to its existing facilities and proximity to Interstate 70 over half of the Ca and Cb workers have chosen Rifle according to company surveys."

For additional information, see Responses 1, 21, and 77 of this letter.

36.26 See Response 74 of this letter.

36.27 See Responses 1 and 9 of this letter.

36.28 The EIS states that the cost of providing services to the populations of Rio Blanco and Uintah Counties in 1979 was $1,005.87 (Rio Blanco, 1980) and $725.17 (UBAG, 1980) respectively. Those costs include the capital and operation-and-maintenance expenditures of each county for that year. In established communities, capital expenditures are on-going. Not all capital expenditures are made in 1 year nor are all capital improvements paid for in 1 year. Bond issues are normally made to finance major capital investments, thus spreading the payments over a longer period of time. Then the using, benefiting agencies and individuals pay for the improvements through taxes on their incomes, real property, and purchases.

36.28 (cont.) This is the present mode of financial operation of the affected counties and is deemed a reasonable and equitable way of accommodating future growth.

Independent evaluation of the socioeconomic analysis (see Appendix 24 of this Final EIS) has concluded that the assessment presented in the EIS is competently done, reflects state-of-the-art methods, and provides an adequate basis for Federal decision-making (see Responses 1 and 19 of this letter).

36.29 Tables 4-20, 22, 32, and 34 have been revised in the Final EIS and include more detailed information about projected revenues. Appendix 11 also contains additional information related to taxes.

The EIS does not assume that substantial severance tax revenues would be available to local governments. However, due to the uncertainty of the amount that would be available to the impacted governments and legal requirements [40 CFR 1500.2 (b); 1500.4 (a), (b), (c), and (k); 1502.1 (a), (b), (c)], it was not discussed in greater detail in the Draft EIS.

This Final EIS does contain additional information on the coal severance tax in Chapter 4 ("Local Government Impacts" sections of "Socioeconomic Impacts") and Appendix 11.

36.30 Some services of the city do benefit from county revenues through special districts (i.e., schools, cemetaries, hospitals, and fire protection).

36.31 Refer to Responses 29, 70, 78, 87 of this letter; Letter Responses 31.9 and 10; and Letter Responses 22g.9 and 10.

36.32 Refer to Responses 1, 61, 62 of this letter, and Appendix 11 in this Final EIS.

36.33 For paragraph one of the comment, refer to Responses 1 and 71 of this letter.

For paragraph two of the comment, in addition to the above-referenced Letter Responses, also refer to Response 70 of this letter.

36.34 Refer to Responses 19, 21, 69, 70, and 77 of this letter.

36.35 REA and BLM agree that the Rangely site is viable. In fact, to be final sites included in the EIS both Bonanza and Rangely were considered viable. However, there are uncertainties involved in the use of White River water in Colorado.

REA has, in the past and will in the future, forced to deal with Western water issues in the various western states in which its borrowers are located. To assist REA in its tentative decision of a preferred site for the Moon Lake project, numerous sources of information relating to the White River water issue were evaluated. These sources included those listed on page 50 of the Rio Blanco County comments, studies prepared for Deseret by Burns and McDonnell and expertise provided to BLM by Vaughn Hansen (consultant), and the Department of the Interior, Office of the Secretary. The Water and Power Resources Service did not provide consultation on the water issue on the White River in Colorado, nor did their comments on the Draft EIS address this issue.

BLM and REA agree that the Colorado agencies which regulate and administer water rights within the state are reliable authorities. However, this authority may not protect Colorado-based holders of water rights on the White River from litigation initiated by out-of-state interests (e.g., Ute Indians

36.35 (cont.) or the State of Utah). It is conceivable that such litigation might result in decisions unfavorable to the State of Colorado and Colorado-based holders of water rights. Refer to the Letter Response 22a.4.

The issue of the existence of threatened and endangered fish species in the White River and the impact of a categorical jeopardy opinion by USFWS on all development on the Colorado River watershed on the timing of the Taylor Draw Reservoir development is also a concern of REA. Refer to Letter Response 22a.2.

While REA's concerns over the uncertainties associated with the reliable and timely development of a water supply does not preclude the utilization of the Rangely site with White River water, REA believes at this time that the uncertainties identified previously are sufficient to question the investment of over $1 billion in a power generation project based on this alternative.

36.36 BLM and REA concur with the comment. Western Engineers' 1979 assessment shows that the Taylor Draw Reservoir would have a 13,800 acre-foot capacity and that it would have provided an average yield of about 41,462 acre-feet during the 1977-78 water year (the lowest flows on record). While it is true that water from the White River is technically and physically available, the timeliness of delivery, as noted in Response 38 to this letter, is still a concern. However, BLM and REA still considers this a viable alternative.

36.37 See Letter Response 22j.4.

36.38 The schedule by which the proposed Taylor Draw Reservoir might be approved and constructed is uncertain at this time. Generally, the approval and permitting process for such a project takes longer than the time allowed in the comment. Further, the USFWS has requested that the Army Corp of Engineers defer the Section 404 permitting process until after the completion of its endangered fish species study in January 1982. The Army Corps of Engineers verbally confirmed this request but has not yet determined its position on the matter (Gibson, 1981).

The comment that the Taylor Draw Reservoir would be on-line before the end of 1984 may be accurate; however, this cannot be assumed.

36.39 See Letter Response 26.8.

36.40 See Letter Response 22g.17.

36.41 See Oral Testimony Response 3.

36.42 See Oral Testimony Response 3.

36.43 See Oral Testimony Response 3.

36.44 The Draft EIS contains information necessary to make a comparative analysis. Pollution emissions would be similar at both sites and air quality standards would be met at either the Bonanza or Rangely site. The differences arise when discussing visibility impacts to Dinosaur National Monument (pages 248-249, Draft EIS) and potential cumulative impacts with oil shale development (page 249, Draft EIS). With respect to these issues, Rangely was identified as being preferable to Bonanza.

36.45 The PSD permit issued by EPA for the Bonanza site requires at least 90-percent SO_2 control for unit 1, with the unit 2 emission control to be established at a later date. However, not more than 418 pounds per hour for two units would be allowed which is 94-percent total control for units 1 and 2 combined. The State of Utah probably will require 94-percent control for each unit.

36.46 Because existing concentrations of lead, hydrocarbons, and carbon monoxide are expected to be low and impacts from the plant would be minimal, background concentrations of these pollutants are not necessary to insure that the NAAQS would not be violated. The inconsistencies have been corrected in this Final EIS (tables 3-1 and 4-4). The modeling scheme used the EPA Valley Model, which is considered appropriate for these two sites. The model assumed worst-case conditions to insure compliance with standards. Because the baseline data collected near Vernal shows concentrations well below the standards, actual baseline conditions at the two plant sites is not important in making comparisons. However, table 4-4 has been amended to include particulate data collected near the Rangely site. Regarding the issue of comparing the air quality effects for the two plant site refer to Letter Response 36.44.

36.47 The model input data used to calculate pollution levels assumed worst-case conditions (i.e. low wind speeds, stable conditions, and winds blowing directly to the impact area for 6 hours continuously). This approach was taken because no on-site data was gathered for either plant site. The results showed that no air quality standards would be violated from a plant at either site so either site would be acceptable from an air quality standpoint.

36.48 The assertion that the intensity of impacts would be about equal for Rangely and Bonanza is based upon results of the visibility model, which assumed transport of the plume past the visitors center. However, this impact would occur more frequently from a Bonanza plant than from a Rangely plant, a comparative point that has been added to the text. (See Chapter 4, "Visibility" section of "Air Quality" in this Final EIS.)

36.49 Because no background concentrations were measured at either site, the data collected near Vernal was used to insure conservative estimates. The data shows that concentrations including background and plant increases would be within the NAAQS, so either site is acceptable from this standpoint. Particulate data collected near the proposed Deserado Mine has been added to this Final EIS Chapters 3 and 4, "Air Quality" sections, as baseline data for the Rangely site.

36.50 Page 249 of the Draft EIS discusses the issue. The Draft indicates that "...possible cumulative impacts on a 24-hour or annual basis between the Moon Lake project and the WRSP are less likely to occur from a Rangely plant than for a Bonanza plant."

36.51 BLM and REA disagree that the citizens of Colorado would not benefit from the project if built in Utah. A portion of the power produced in Utah would be used in Colorado. In addition, Deseret has proposed economic mitigation to Colorado should the plant be located in Utah. Also, jobs would be created at the proposed Deserado Mine in Colorado. Interstate pollution control is an unresolved issue as mentioned in the Summary of this Final EIS.

36.52 The net energy analysis (Appendix 2O, Table B of this Final EIS) shows that there would be substantial coal transport energy savings if the plant were located at the Rangely site. These savings would more than offset the transmission system energy savings afforded by the Bonanza site. Thus, on the basis of an energy analysis only, the Rangely site offers energy savings.

36.53 The socioeconomic impacts of the proposed project are detailed in Chapter 4. Cost estimates provided by Burns and McDonnell were independantly evaluated by both BLM and REA.

The cost estimates in Appendix 2D Table D, have been revised and included in this Final EIS. Based on those costs estimates, it is true that there would be savings if the Rangely site were utilized for the generating plant. This information has been included in the "Cost Comparison of Moon Lake Project Alternatives", Appendix 2D, of the Final EIS.

36.54 The railroad costs have been revised. See Appendix 2D in this Final EIS.

36.55 The introduction to Chapter 4 directs readers to Appendix 2D which depicts the energy savings that would be anticipated from a Rangely site selection.

The potential for wheeling is discussed in Chapter 2, "System and Corridor Coordination Alternatives". As indicated, there would be environmental and economic cost savings if the applicant and UP&L could agree upon a wheeling and mutual transmission line construction contract. There are concerns about the authority of the Departments of Agriculture or Interior to impose system interties, tower sharing, and cooperative wheeling on the companies. Additionally, as stated in the Draft EIS, the time required to develop such agreements may not meet the Moon Lake project time frame. According to REA, there would also be serious system reliability problems in the event of a forced power outage.

Regarding the actual terminus of the unit 2 transmission system, see Response 65 to this letter.

36.56 Chapter 1, "Purpose and Need for the Project" section of this Final EIS contains information from a new Power Requirement Study recently completed by Deseret and approved by REA.

36.57 The "Purpose and Need" section of Chapter 1 of this Final EIS has been rewritten due to the fact that Deseret has completed its 1980 PRS which has been approved by REA. As a result, tables 1-2, 1-3, 1-4, 1-5, and 1-6 now show more current forecasts. The annual growth rate for Deseret's demand in table 1-3 is now forecast to be 12.9 percent for 1979-1984, 14.7 percent for 1984-1989, and 8.0 percent for 1989-1994.

The service area of each of Deseret's members was examined individually in compiling the PRS. In the 1980 PRS, energy usage and demand forecasts for each member was determined for 1984, 1989, and 1994. The studies of all six member systems were then consolidated into a forecast of Deseret's energy usage and demand in those same years. These forecasts are reflected in table 1-2. The annual growth rates were then calculated and are shown in table 1-3. The growth rates shown in table 1-3 are not arbitrary rates selected and used to predict the demand and energy requirements of Deseret.

Deseret's demand in 1979 was 178 MW. UP&L's demand in 1979 was 2,723 MW. No doubt, the demand figure for the Northwest Power Pool was many times larger. A new 25-MW load would be reflected as a 14-percent increase for Deseret while it would be only a 0.9-percent increase for UP&L. A study of the Northwest Power Pool area in which many power systems, both large and small, are averaged together may well be correct in predicting 3.5 percent or 4.4 percent or 2.8 percent annual growth in demand. This does not exclude the possibility that Deseret and REA may also be correct in forecasting that in Deseret's individual service area demands will increase at 12.9 percent, 14.7 percent, and 8.0 percent over the 1979-1994 period.

36.58 It was not the intent in the Draft EIS to imply that the Utah Public Service Commission order precluded UP&L from all sales of power. The order had no bearing on retail sales by UP&L. The order affected UP&L's sales for resale (wholesale contracts). It did direct UP&L to, among other things, terminate all existing resale contracts with entities designating Intermountain Consumers Power Association (ICPA) as agent. Deseret's six member systems were entities which had designated ICPA their agent.

There is no conflict in the data presented on pages R-41, R-46, and R-47. The Deseret Memonrandum states that UP&L desires to purchase power from Deseret between 1985 and 1987. The UP&L letter states that capacity may be available for joint ownership in the 1987-1988 time frame.

With completion of the 1980 PRS Deseret's load growth shows that Moon Lake unit 1 is needed by March 1985 and unit 2 is needed by 1988. Since Moon Lake unit 2 will more efficiently utilize the fuel supply, cooling water supply and other common facilities related to the Moon Lake power plant, an alternative source of power supply would have to be very economical to justify a delay of Moon Lake unit 2.

36.59 Of the three projects mentioned, the Intermountain Power Project (IPP) has the most relevance to the Deseret proposal. Since Deseret's member systems have collectively contracted for roughly 176 MW from IPP, a paragraph has been added to the "Purpose and Need" section of this Final EIS to explain the relationship of IPP to the proposed Moon Lake power plant. Because of the planned in-service dates of the IPP units (1986, 1987, 1988, and 1989), capacity from IPP is not a viable alternative to Moon Lake unit 1. Capacity from IPP may prove to be an alternative to Moon Lake unit 2 but with the levels of load growth anticipated in the 1988 time frame, utilizing the 176 MW of IPP capacity can only delay installation of Moon Lake unit 2 by roughly 1 year.

The White Pine project is in the developmental stage. At the time environmental evaluation is complete and financing and ownership arrangements more fully defined, its potential can be factored into Deseret's planning.

Deseret's participation in UP&L's Wellington unit 1 is apparently a possibility for the 1990s. It could be an option for Deseret after power demands of its members exceed the capacities of Moon Lake units 1 and 2.

36.60 The Salt River project offered to provide Deseret 200 MW in 1985, 250 MW in 1986, and 300 MW in 1987 at costs "comparable to the in-service projected mill/kWh of the Moon Lake project." The offer is, however, qualified by five conditions, one of which is the timely completion of the Palo Verde Nuclear Plant, which is not proceeding as scheduled. If Deseret accepted the Salt River offer, it could only delay its Moon Lake power plant by 3 years and it would risk the uncertainties noted in the Salt River letter.

REA and BLM do not conclude that Deseret should rely on the Salt River offer to delay the Moon Lake project.

36.61 The two lead agencies (BLM and REA) independently evaluated and analyzed the data submitted by Deseret and their consultants regarding the economic aspects. Both agencies have have determined that the construction of a coal-fired generating station is the best option open to Deseret this time.

36.62 BLM acknowledges the language quoted from the CEQ regulations; however, BLM differs with the commenter on the interpretation of those quotations. Clearly the regulations leave considerable leeway for interpretation in application of judgement regarding words such as "appropriate", "extent possible", and "reasonable".

As noted in Responses 19, 21, 77, and 111 of this same letter, BLM has used the best available data to reasonably represent the socioeconomic impacts in the EIS which may result from the proposed project at both Bonanza and Rangely sites.

The Draft and Final EIS acknowledges that socioeconomic impacts are an unresolved issue and area of controversy. Additionally, the EIS (table 2-13) indicates that, from the Federal perspective, the predicted local tax imbalance would be an unavoidable adverse socioeconomic impact (since such taxing adjustment prerogatives are a non-federal responsibility).

With regard to REA imposing mitigation measures (Reference page 93, Part B, sentence 1), the conditions that REA may impose must be reasonable and within the agency's statutory authority to do so.

REA reviewed the socioeconomic and environmental impacts as evaluated and quantified by Burns and McDonnell, the Town of Rangely, Rio Blanco County and other interested parties. Comments received on methods to minimize impacts were likewise evaluated and such input led to adoption of several proposals. Additional measures will likely be developed as Deseret and the affected communities continue to meet and discuss the impacts and the needs of those affected. REA has administratively determined that the mitigation measures discussed in the Final EIS are an appropriate means to minimize the impacts associated with the proposed project. Also refer to Letter Response 36.1.

On pages 98 and 99, reference is made to sections of REA Bulletin 20-21: 320-21. Specifically, language is quoted from Sections III.A.1, III.B.1, and III.c. REA would like to point out that these provisions are found in the May 20,1974, revision of the REA Bulletin which has been explicitly superseded by a new EA Bulletin 20-21:320-21 dated January 20, 1980. The new bulleting was issued in response to and is in compliance with the CEQ Regulations implementing NEPA (40 CFR Parts 1500 to 1508). The language quoted on pages 98 to 99 does not appear in the new Bulletin.

36.63 The Hunter plant is located over 100 highway miles away from the Vernal-Rangely area and IPP plants are not expected to contribute to cumulative impacts in the Rangely-Vernal area. Also, see Oral Testimony Response 35.

36.64 The text has been revised. See Chapter 1 of this Final EIS, "Regional Coal Development" section.

36.65 It is noted on page 2 of the Draft EIS that, "if unit 2 were constructed, the power would be transmitted to Ben Lomond or to the oil shale fields in Utah and Colorado." Based on available data and the uncertainty of future demand for electricity for oil shale development, the applicant concluded that, at present, the best location to terminate the unit 2 line would be Ben Lomond substation. Therefore, they proposed that action for analysis. It is emphasized that both the timing of unit 2 and destination of the 345-kV line could still change based on future load-growth patterns and needs in Deseret's service area. For instance, some future electric power may be generated as a by-product of oil shale retorting; however, it is not known if this would be sufficient to serve the added community needs associated with that industry.

Assuming that oil shale development in western Colorado/eastern Utah creates a demand for electricity and unit 2 is built, the associated transmission lines could terminate in the project area. If that happened, there would be significant energy savings for construction and operation of the Deseret unit 2 transmission system. In this case, it is probable that, based on net energy and cost analysis, the unit 2 transmission system from either Bonanza or Rangely alternative plant sites would be nearly equal. However, the unit 1 transmission system costs (in terms of dollars, energy, and environment) would be greater from the Rangely site than the Bonanza site.

36.66 The EIS recognizes that there are costs and benefits associated with either plant location. The analysis presented is Chapter 4 and information contained in the appendices provides readers (decision-makers and the public) a basis for comparing the relative environmental impacts and socioeconomic benefits of each alternative.

36.67 All agencies with jurisdiction by law or special expertise were contacted to solicit their participation in preparation of the Draft EIS (see pages 329 and 330). In addition to those agencies specifically requested to participate, all agencies were notified of the project through a Federal Register notice and were provided the opportunity to provide input during the preparation process whether specifically requested to do so or not. We agree that it is difficult to determine the extent to which these agencies participated just by reading the Draft EIS. It is impossible to simply delineate which portions of the text and other items various agencies contributed because of the wide variety of formal, informal, and intermixed input. However, detailed records of the participation are available for examination and the letters presented in this Final EIS are evidence of review and input from those participating.

36.68 BLM and REA have independently evaluated and verified data presented in the EIS and have accepted responsibility for the analysis presented. In compliance with Section 1506.5 (a) of the CEQ regulations, persons responsible for the various disciplines are listed on table 5-1, page 338 of the Draft EIS. It should be noted that the intent of 1506.5(a) is "that acceptable work not be redone, but that it be verified by the agency."

Independent data gathering and analysis by BLM is evidenced by numerous references and citations in the Draft EIS that are not included in company submissions or environmental assessments.

36.69 40 CFR 1502.15 states that, "The environmental impact statement shall succintly describe the environment of the area(s) to be affected or created by the alternatives under consideration." The Draft EIS fulfills this task by describing the present environment in combination with supporting documents, as well as giving an indication of the future environment, particularly in the cumulative impact section of Chapter 4.

It must be recognized that, because of the changing synfuels situation in the region, projections for Moffat, Rio Blanco, and Uintah Counties are

36.69 (cont.) uncertain. Basing the analysis on them would raise questions as to the validity of the projections specifically related to the Moon Lake power plant project, as well as of their ramifications for the analysis. The most accurate analysis is based on conditions which exist today, with the impacts from this particular project considered on a "first-added" basis.

36.70 Some fiscal analysis of the two communities was included in the Draft EIS and Burns and McDonnell, 1979a. (See Tables III-7 and III-36, pages III-19 and III-70 in Burns and McDonnell, 1979a.) Furthermore, the report utilizes a site-specific capacity analysis of facilities rather than a generalized, theoretical cost/revenue analysis of the communities. The site-specific analysis is felt to be more precise and useful in this case.

The industry and occupational structure of the impact areas may be found in Burns and McDonnell, 1979a (Tables III-14 and III-43, pages III-28 and III76 respectively, "Employment By Industry.")

The Town of Dinosaur was included in the residential distribution analysis and impacts on the town have been considered in development of the proposed mitigation plan.

It is believed that the portion of the Draft EIS in question adequately describes the affected environment and does not require revision.

36.71 BLM's policy regarding inclusion of proposed mitigation in the analysis is that it must be "real and committed" (BLM 1792 Manual). Since the proposed mitigation available at the time of the Draft EIS did not meet these criteria, it was not included in Chapters 2 or 4.

The revised Appendix 11 in this Final EIS contains more specific measures. However, at the date of this response (3/12/81), the measures have not been approved by either county; but it is expected to serve as the basis for negotiations between the counties and Deseret.

Also, see Response 1 of this letter.

36.72 Burns and McDonnell distributed 100 copies of their socioeconomic report. Copies were sent to government entities at all levels. Specifically, in Colorado, some of those receiving at least one copy include the Town of Rangely, Rio Blanco County, Colorado West Area Association of Governments, and the BLM Colorado State Office in Denver. These copies are available for public review. NEPA and 40 CFR 1500 do not require inclusion of voluminous technical material in the EIS; however, the Burns and McDonnell socioeconomic report is incorporated by reference, as applicable.

The concerns expressed in the remainder of this comment are addresssed in Responses 19, 21, and 77 of this letter.

36.73 The table provided with the comment provides limited basis for comparison since no description of the projects is given nor the type of workers included. Also, some of the projects are not comparable (i.e., the San Onofre nuclear station). No conclusion can be drawn since the table provided in the comment is inconsistent with exhibit 2 in the appendixes to the letter. Five of the power plants mentioned are in the eastern United States and would not be representative of the Moon Lake power plant project.

In tables 2-5 and 2-6 in the Draft EIS, allowances for higher employment rates were made through the use of higher-than-average family sizes, marriage percentages, and the use of peak rather than average employment rates. Therefore, contingencies are already built into this analysis.

The possibility of variation was meant to be reflected in the use of terms such as "anticipated" and "approximately."

36.74 The comment overstates the skill levels required for a power project and underestimates the skills of local residents. The "Construction Worker Profile" (Mountain West Research, Inc., 1976) provides a similar breakdown of workers and notes the percentage of local workers by trade. That study found an average of no less than 17 percent of the labor in any trade was local, including 42.9 percent of boilermakers, 27.1 percent of electricians, and 28.4 percent of steamfitters. The local makeup of other trades was higher (i.e., carpenters and millwrights were over 50 percent). The average local composition was 39.9-percent overall.

Further information from the "Construction Worker Profile" reveals that the Craig Station project in nearby Moffat County had 42-percent local workers and the Hayden project had 32.1-percent local workers. Wyodak is the only case in the study with less than 26-percent local employees, and only three of 14 cases had less than 30-percent local.

36.75 It was felt that the socioeconomic section was already diverse with two alternative plant sites superimposed over the 1 unit/2 unit scenarios. Therefore, it was decided that the disadvantages of additional diversity in population distribution alternatives would unduly complicate the analysis would outweigh the advantages of additional scenarios and would not greatly enhance the data on which a Federal decision could be based.

36.76 The employment multipliers used were developed using the "Construction Worker Profile" (Mountain West Research, Inc, 1976) and the "Comprehensive Plan for the Craig Area of Moffat County" (Orton, 1977) in conjunction with field studies. The Uintah Basin Association of Governments (UBAG) has not made any adverse comments on the multipliers used. Rather, UBAG and the Uintah Basin Energy Planning and Developing Council supported the socioeconomic portions of the Draft EIS in their comments at a public hearing held in Vernal, Utah on February 18, 1981.

Also see Burns and McDonnell (1979a) for further information regarding multipliers.

36.77 Dr. Lewis of Utah State University and the BLM Colorado State Office found the use of a gravity model reasonable and acceptable. Dr. Lewis stated that, "Finally, the residential prediction model described in Appendix 1 (Burns and McDonnell [1979a]) is, in my opinion, the best way to allocate new population to a variety of residential centers." And, as Mr. Leistritz points out in the reference cited in the comment, "...models calibrated using data on actual settlement patterns may prove useful although their accuracy may vary among site areas." Calibrated models were used in the preparation of the Draft EIS. In addition, "all constraints on living in the various communities" were thoroughly investigated and considered.

The population base used for the model was the most reliable available. Projections for the area are so variable that estimating distribution on the basis of uncertain projections would only diminish its usefulness. Basing allocations on uncertain projections would undermine the accuracy of the attempt.

For example, in their 1980 Regional Population Projection Growth Monitoring Report, the CWACOG projected Rangely's 1980 population as 2,600, while the 1980 Preliminary Census count for Rangely is 2,112, thereby overestimating Rangely's 1980 population by 23 percent.

36.77 (cont.) Population projections are also discussed in a 1979 study by the Denver Research Institute entitled Socioeconomic Impacts of Western Energy Resource Development. The study offered a base case and two basic scenarios, with variations. On page 29 it states, "The base case population projections, in general, show the same trends as base case employment. Mesa and Garfield Counties show population increases, while Moffat and Rio Blanco show losses." Furthermore, the study goes on to state, "Industry's growing skepticism of the technology coupled with the uncertainty of the Federal government's attitude toward development of this resource makes Scenario I or Sensitivity Analysis 1 ("stretching" out the development period) appear to be the most likely case." (page 16).

Scenario I results in an increase of only 600 people in Rio Blanco County by 1985, and Sensitivity Analysis 1 only slightly modifies the high level growth rate and suffers from the same faults. By contrast, the 1985 "most likely" projection for Vernal is a population of 19,500 based on Utah State Planning Coordinator's Office (Jones, 1981).

Adding other scenarios in the Draft EIS (four are suggested, not three) could complicate the usefulness of the document, rather than providing a straightforward focus on the main actions.

36.78 Fiscal impacts on Rangely and Vernal were addressed using a capacity analysis methodology.

Other jurisdictions are handled in the same manner. The per capita county expenditures were included only to provide a frame of reference for the reader. They were not implied to represent a cost analysis since that approach was not chosen. It should be noted that the Colorado figures are only estimates as well, vis. "As with any estimation process dealing with aggregated numbers, there are points where assumptions have to be made and simple guesswork undertaken." (Colorado State Dept. of Local Affairs, 1981). For further discussion of the Division of Impact Assistance cost figures, see Letter Response 22g.9. Estimates of fiscal revenue are too problematical to contribute to the evaluation because they would involve innumerable assumptions such as anticipated population distribution, housing types and price, future mill rates, retail sales patterns, success of grant applications, etc.

As noted in Response 1 to this letter, the details of socioeconomic mitigation, including all of the the above factors, would be expected to be arranged jointly by Deseret and the local officials as the actual situation begins. Specific plans can be implemented and adjusted at the community and county level.

36.79 Commercial growth and associated human services impacts have been analyzed as a spatial need on page 268 of the Draft EIS.

36.80 See Responses 1 and 71 of this letter.

36.81 The text has been revised. See "Socioeconomic Impacts" section of "Unresolved Issues in the Summary of this Final EIS. However, it should be noted that Rangely would receive revenue from the mine through special districts which cover fire protection, hospitals, schools, recreation, cemetary, and sanitation.

36.82 See Letter Response 22g.17.

36.83 A general statement has been inserted in this Final EIS indicating that the reference "Burns and McDonnell 1979a" is the basis for the socioeconomic portion of the EIS; therefore, unless otherwise stated, the material was derived from that study. The material has been reviewed for verification as explained in Response 19 of this same letter.

A statement has also been added to the text indicating that these figures represent estimates and may vary.

36.84 See Responses 78 and 87 of this same letter.

36.85 Historic trends and other baseline data were used in Chapter 3 "Affected Environment" and Chapter 4 "Environmental Consequences". Impacts such as accident occurrences are detailed on page 270. Population-induced impacts to county roads have not been identified; therefore, mention of those routes was generally not included in the Draft EIS. New information on access has been added in Chapter 2 of this Final EIS. The Colorado Department of Highways (Comment Letter 22f) indicates that with Deseret's proposed project "There will be some increased traffic from work trips and shipment of construction materials but no significant impacts."

36.86 See Responses 78 and 87 of this letter.

36.87 See Response 78 of this letter. Also, a capacity analysis does not rely on this type of information.

The per capita figure on page 191 of the Draft EIS was referenced as communication from the Rio Blanco County Assessor (1980). It represents expenditures for all local governments and special districts. The Burns and McDonnell figure represents just county government expenditures, as referenced.

36.88 The material addressed in the comment is considered to be technical background data and is contained in the Burns and McDonnell 1979a Socioeconomic Technical Report.

36.89 See Response 88 of this letter.

36.90 The figures mentioned do come from the 1970 Census. Comparable data for the 1980 census will not be available until later in 1981.

36.91 A capacity analysis was used as opposed to a cost/revenue analysis. The future financial condition is considered in terms of facilities needed.

Student enrollment projections were provided by the respective superintendents (as referenced). They represent best estimates of expected enrollments.

36.92 Quality of life indicators can be found in the Draft EIS on pages 200 and 201 and impacts to quality of life on page 298. Social Services mitigation is proposed in Appendix 11 in this Final EIS.

36.93 Most quality of life criteria are unquantifiable; however, expected impacts to these indicators can be found on page 298 of the Draft EIS. The section "Quality of Life Indicators," when combined with the "Cumulative Socioeconomic Impacts" section will give a generalized projection of quality of life changes, based on observations at other energy projects.

36.94 Chapter 3 of the Draft EIS is an explanation of the existing conditions that would be affected significantly by the proposed project. No attempt at encyclopedic descriptions has been attempted. Current CEQ regulations state that analysis be commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced. Chapter 4 "Environmental Consequences," pages 281, 290, and 298 of the Draft EIS discusses impacts affecting law enforcement.

36.95 The primary influence zone for socioeconomics is the Rangely/Vernal area. The secondary influence zone, as described on page 2D1 of the Draft EIS, was designated primarily to discuss impacts arising from recreational pursuits. The effects of the project on the secondary influence zone would be minimal and therefore specific community details in that zone were not discussed in the Draft EIS.

36.96 Appendix 18 presents user information on campgrounds, picnic areas, and visitor centers. It may also be noted that most white-water boating resources/facilities at Dinosaur are being used at capacity and use is controlled by a permit system to limit crowding. Future population growth with or without the project would further increase the difficulty of obtaining river-running permits (USDI, National Park Service, 1979).

36.97 ADT volume baseline data for affected highways is provided on page 187 of the Draft EIS. Percentage increases to the ADT volume baseline are presented on page 270, Chapter 4 of the Draft EIS, and these are related to highway sufficiency and accident occurrence. Baseline data sources are quoted in the Chapter 4 analysis and the complete reference can be found in "References Cited", page R-165. Major population-induced traffic impacts and impacts to area and regional tourism have not been identified as significant issues; hence, they have not been included in the EIS. Also, see Response 85 to this same letter.

36.98 Baseline conditions were established (see Responses 19 and 69 of this letter).

Many of the elements said to be missing (i.e., occupational mix, income projections, and social services) are contained in Burns and McDonnell (1979a), incorporated by reference as explained in Response 72 of this same letter.

36.99 The 1,072 figure cited on page 271 of the Draft EIS is in error and has been replaced with the correct figure of 1,D35. See Chapter 4 "Employment Projections (unit 1)" of "Socioeconomic Impacts" in this Final EIS.

36.100 Burns and McDonnell (1979a), as noted in the bibliography of the Draft EIS, was modified due to various changes in the project. These changes are contained in an addendum to the 1979a document and were sent to the agencies involved with the project. This amendment was inadvertently omitted from the bibliography in the Draft EIS. The apparent contradictions you refer to result from this error.

Text has been added in the Final EIS citing both Burns and McDonnell documents mentioned above as the source of data in the socioeconomic section, unless otherwise cited.

36.101 The Draft EIS does not contain all technical reports used in preparation of the document. The reason table 4-11 does not agree with the one from Burns and McDonnell (1979a) is that the schedule was shifted as per the "Modifications to the Socioeconomic Environmental Assessment for the Moon Lake Project." (July 18, 1980). These modifications were mailed to Rio Blanco and Rangely officials. The same is true of the tables 4-13, 4-15, and 4-16.

36.102 Refer to the referenced Burns and McDonnell (1979a) report for the original sources of population projection data. Most data were obtained from state and local sources, then adjusted to best fit the current outlook.

36.103 Table 4-15 is not based on need or economic demand but on the historical quantities of housing demanded by construction workers. Housing preference, demand, and actual supply are contained in Burns and McDonnell 1979a (Table IV-9, page IV-27). Consideration of financial difficulties and housing supply was incorporated in the development of the table, as well as historical data contained in the "Construction Worker Profile" (Mountain West Research, Inc., 1976).

36.104 Socioeconomic references will not always agree on officer ratios per population influx; however, specific requirements will ultimately be identified through actual population influx and associated changes to area historic trends in crime. Page 281 of the Draft EIS states that: "The actual degree to which increased crime would occur cannot be predicted." The quoted officer/population ratios on page 281 do not represent a maximum figure for applicant mitigation efforts. Law enforcement mitigative measures by the applicant to local communities are stated in the Draft EIS, Appendix 11, page R-63, "Deseret and Western Fuels would coordinate closely with the local communities and would provide assistance as required and mutually agreed upon." Deseret's mitigation plan has been updated in Appendix 11 of this Final EIS.

36.105 The text has been changed to reflect a recent figure of 22 percent. See "Health Facilities and Personnel" sections of "Socioeconomic Impacts" in Chapter 4 of this Final EIS.

36.106 The text has been changed to reflect this information. See "Local Government Impacts" sections of "Socioeconomic Impacts" in Chapter 4 of this Final EIS. Also, see the revised Appendix 11 in this Final EIS.

36.107 This information will be used in the decision-making process, although Deseret has indicated a willingness to coordinate closely with the communities to provide assistance. See Appendix 11 of this Final EIS and Response 1 of this same letter.

36.108 These figures were provided by the respective counties. Also see Letter Responses 38, 29, 78, and 87 of this letter; 31.9 and 10; and 22g.9 and 1D.

36.109 The unit 2 scenario has been reviewed with the comments referred to considered, and appropriate changes made. See "Socioeconomic Impacts of Chapter 4 in this Final EIS. It should be noted, however, that due to assumptions used for unit 2 analysis, many factors were adjusted, including percent of local, percent married, and family size.

Response Letter 36

36.110 Uintah and Rio Blanco County public attitudes (page 200 of the Draft EIS) have demonstrated favorable responses toward economic growth. Unfavorable responses from the existing communities would occur at a point where the threshold-eroding perceived values would be reached. These values include religious factors and cultural homogeneity. This point where people would change their attitude on growth from favorable to unfavorable would be highly individualized. Actually, many people would have mixed views, with no clear-cut position on the matter.

36.111 The adjustments made in socioeconomic portions of the Final EIS, along with responses to comments and material incorporated by reference, should provide the reader with a reasonable understanding of the overall socioeconomic situation in the primary zone of influence (i.e., Rangely-Vernal region).

As noted in Responses 1 and 19 to this same letter, the socioeconomic content of the EIS is considered adequate for compliance with the National Environmental Policy Act; although some detailed followup is expected at the state and local level.

36.112 See Letter Responses 26.2 and 36.18.

36.113 BLM and REA have responded to general and specific comments supplied by the County and other interested parties. All of the comments and responses are included in this Final EIS and will be considered in the decision-making process.

Comment Letter 37

UNITED STATES GOVERNMENT

memorandum

DATE: MAR 2 1981

REPLY TO ATTN OF: Acting Director, Office of Trust Responsibilities

SUBJECT: Draft Environmental Impact Statement, Moon Lake Power Plant Project, Units 1 and 2 (DES 81-2)

TO: Director, Office of Environmental Project Review

The subject document has been reviewed by the Bureau's Navajo Area Office. The comments that resulted from the review are being forwarded per the enclosed memorandum.

William L.

Attachment

OPTIONAL FORM NO. 10
(REV. 1-80)
GSA FPMR (41 CFR) 101-11.6
5010-114

Comment Letter 37

memorandum

DATE: FEB 1 7 1981

REPLY TO ATTN OF: Area Director

SUBJECT: Review of Draft Environmental Impact Statement, Moon Lake Power Plant Project, Units ~~1 and 2 (DES 81-2)~~

TO: George R. Farris, Acting Chief
Environmental Services Staff

We have completed a cursory review of the subject impact statement and submit the following comments for your consideration.

37.1 The statement that construction of Unit 2 will be initiated depending on future demands is indeterminate. We submit that specific criteria and levels of use be identified as points of action for the final phase planning and construction of Unit 2. This seems imperative to preclude an arbitrary decision to construct Unit 2 in speculation of future out-of-state markets.

37.2 The fact that the Utah Public Service Commission Order has directed Utah Power and Light to terminate its wholesale power sales agreement with members of the Intermountain Consumers Power Association does not, in fact, diminish the electric power being generated or that will potentially be generated with existing and proposed power plants (page 24, paragraph 2, Generation Planning - Utah Power and Light, Hunter 2 Project). It appears that ample electrical power generation is, or will be available and the primary concern is what company will be in a position to take advantage of the market regardless of the number of power plants in existance.

37.3 This issue is raised in consideration of the proliferation of electrical power generating plants in the southwest. Those in existance and those approved for construction will provide many times over the power demands of the immediate area.

A cumulative assessment of the present electric generating system in the southwest may well show that generating potentials have already reached or exceeded the "future power demands" and new or proposed plants are being constructed primarily for spectulation at the expense of the public both economically and environmentally.

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

OPTIONAL FORM NO. 10
(REV. 7-76)
GSA FPMR (41 CFR) 101-11.6
5010-112
★ GPO : 1978 O - 261-647 [illegible]

Response Letter 37

37.1 Refer to Letter Response 14.1.

37.2 Providing electric utility service is never static. Loads grow and generating plant additions must be planned in order to be available to supply the loads. There is adequate generating capacity available currently to meet current loads. One can refer to table 1-5 to see the type of load versus resource planning a utility must utilize. Deseret's current resources are made up of 3.5 MW from small hydroelectric projects, 100.4 MW available from its share of Hunter Unit 2 and 129.4 MW available under long-term contract from the Western Area 129.4 MW available under long-term contract from the Western Area Power Administration. This adds up to 233.3 MW. UP&L has agreed to supply supplemental power to Deseret through March 1985. In 1984, Deseret expects to purchase 125 MW from UP&L under that contract. No doubt, in planning its future units, UP&L expects to have that 125 MW available in 1985 and beyond to supply its retail loads.

37.3 REA financing cannot be provided for a project unless the electrical production of the project is provided to rural consumers. This does not prohibit short-term sales of surplus capacity. Examination of table 1-5 shows Deseret is predicted to have surplus power from unit 1 available for short-term sale in 1985 and 1986. Deseret will have surplus power from unit 2 available for short-term sale in 1988, 1989, and 1990.

REA would not consider it proper to provide financing for a project if the output of the project was intended for export to other utilities or for supply to speculative, unidentified loads, Except for the possible short-term sales of surplus power mentioned above, it is anticipated the full output of the Moon Lake project will be used to supply load growth expected on the systems of the six REA-financed distribution cooperatives which are the members of Deseret. Also refer to Letter Response 14.1.

APPENDIX 3

APPENDIX 3, TEXT REVISIONS

1. Page R-9

Add second sentence to first paragraph as follows: "These lists are not complete. Deseret would also be required to comply with all applicable Federal, State, and local government ordinances and licensing requirements."

2. Page R-10

Add the following under Water and Power Resources Service:

Project Feature	Nature of Action	Authority
Release of water from Flaming Gorge Reservoir	Water Sales Contract.	Colorado River Storage Project Area (P.L. 84-485

APPENDIX 11

Introduction

This appendix contains the latest socioeconomic mitigation plan prepared by Deseret which REA believes is appropriate. Deseret proposes to implement the measures of the plan as necessary. The implementation of the plan will be timed to minimize, to the extent practical, the socioeconomic impacts associated with the construction and operation of the Moon Lake project.

Additional meetings between Deseret and representatives of the affected communities within the impacted counties of Colorado and Utah are expected. Before the final mitigation plan has been negotiated, additional measures or adjustments to the measures contained herein may be agreed to by the participants.

Whereas the final negotiated agreement will be binding on all parties, it must be realized that the terms of this agreement will be based upon and associated with predicted levels of industrial development and subsequent population growth. As the anticipated industrial development occurs within the region, the actual levels of population growth and its impact on the affected communities may exceed or be below the predicted levels. Therefore, BLM and REA acknowledge that further adjustments to the final mitigation plan may be necessary at a future date.

DESERET
Generation & Transmission Co-operative
8722 South 300 West ☐ Box BB ☐ Sandy, Utah 84070 ☐ (801) 566-1238

February 12, 1981

Board of County Commissioners
Rio Blanco County Courthouse
P.O. Box 599
Meeker, Colorado 81641

Dear Sirs:

During the meeting between the Rio Blanco County Board of County Commissioners and Deseret Generation & Transmission Co-operative Board of Directors held in the Rio Blanco County Courthouse on October 27, 1980, Mr. Tim Schultz, the Chairman, requested that Deseret submit to the Commissioners for their review its suggestions for impact mitigation measures. Further, he stated that if suitable mitigation measures could be agreed upon, the Commissioners would not oppose the plant construction in Utah.

Subsequent to the meeting in Meeker, meetings were held by Project personnel with representatives from the various taxing entities in western Rio Blanco County to assure that their impacts are fully considered in the mitigation measures adopted. It became evident a coordinated effort was needed. The Town of Rangely took the lead to create an informal forum or grouping of the taxing entities so there could be a unified approach to identify Project impacts and arrive at proposed mitigation measures. This has proven to be an ongoing process, so we have not received complete input from the taxing entities. There has been no input from Rio Blanco County. Therefore, we have taken the initiative to present suggestions for development of a mitigation plan as shown in the enclosed Project Impact Mitigation Measures. You will note under the heading "H. General" there is a continuing opportunity for taxing entities, which may feel their needs are not adequately addressed, to present them for consideration. Further, as you know, the Project opened an office in Rangely and staffed it with a professional person on November 18, 1980. She has actively worked with the representatives from the taxing entities to assist them in identifying

Board of County Commissioners
February 12, 1981
Page 2

Project impacts and to arrive at mitigation measures. She will continue to assist as required.

This letter and the enclosed suggested impact mitigation measures are submitted on behalf of Western Fuels-Utah, Inc. and Deseret Generation & Transmission Co-operative. We need to know the Board's views as soon as possible because we must begin making financial committments involved in the mitigation program.

We continue to solicit your nomination of Project induced impacts which could be properly considered for mitigation as well as your comments on these suggestions.

Sincerely,

J. Sterling Merrell
Community Impact Coordinator

JSM:ef
Encl.

COLORADO

A. Housing

The following table reflects the most recent figures, developed by Burns & McDonnell and concurred in by the Bureau of Land Management and Rural Electrification Administration, as being the required housing facilities to meet the impact the overall project, i.e. Moon Lake Power Plant and the Deserado Mine, will create in the Rangely and Dinosaur areas.

TABLE I

Housing Demand for Rangely by Year

	1981	1982	1983	1984	1985
Single Family	19	40	58	71	97
Apartment	9	19	22	24	26
Mobile Home	36	75	87	85	92
RV and Trailer Pads	22	45	40	23	3

TABLE II

Housing Demand for Dinosaur by Year*

	1981	1982	1983	1984	1985
Single Family	3	6	8	9	7
Apartment	1	2	4	4	3
Mobile Home	8	15	16	18	14
RV and Trailer Pads	4	7	9	10	8

*Breakout developed from Dinosaur population projection shown in Table 4-11 DEIS.

Based upon a review of existing housing, plans of private developers, and the interest shown by these developers, the Project has approved a policy to provide housing or guarantees for the housing quantities as listed in the following table:

TABLE III

Housing Guarantees for Rangely by Year

	1981	1982	1983	1984	1985
Single Family	13	27	36	44	58
Apartment	5	15	16	17	17
Mobile Home	25	50	55	55	55
RV and Trailer Pads	15	35	30	16	---

TABLE IV

Housing Guarantees for Dinosaur by Year

	1981	1982	1983	1984	1985
Single Family	2	4	6	6	6
Apartment	0	1	3	3	2
Mobile Home	6	12	12	14	10
RV and Trailer Pads	3	5	7	7	6

Single Family Housing: The Project will encourage private developers to provide the necessary single family housing by guaranteeing the sale of previously agreed upon, newly constructed houses. Project personnel will assist new employees to locate available lease/rental housing and sources of mortgage financing.

The Project will also construct some single family dwellings. These will then be sold or leased to the employees depending upon available mortgage money and interest rates.

A cost monitoring and inspection program will be implemented to assure the Project of reasonable housing cost, with adequate quantity and conformance with quality construction procedures.

Apartments: Local developers are prepared to construct the apartment units needed. The Project will provide rental guarantees.

Mobile Homes: Sufficient local developers are available to provide the necessary mobile homes. Contractual arrangements will provide for rental guarantees by the Project. Should additional mobile home housing be needed beyond what developers will provide, the Project is prepared to install the necessary units.

Recreational Vehicle/Trailer and Bachelor Quarters: In the Rangely area the Project is prepared to construct and operate a recreational vehicle/trailer park and, additionally, will furnish single room, motel-type housing to accommodate single status construction workers. It is presently planned to provide four 6-unit mobile facilities for this purpose. An adjunct to this park will be a cafeteria facility to provide meals for single status construction workers. The project will retain flexibility to adjust the number of RV/trailer pads to complement the motel type units.

A housing office will be established by the Project for the purpose of managing Project-controlled housing, rentals of mobile homes and bachelor quarters, and the operation of the cafeteria.

Note: It is difficult to provide flexibility to meet reasonable cost housing requirements in the Rangely area since there is limited suitable land available for development, and the town is hemmed in by a flood plane on the north and BLM land on the east, south and west. Rangely has applied to acquire contiguous BLM land to be used for housing. The Project will continue to work with the community to assist in the acquisition of this property. The Project is acquiring private lands located in the coal mining area which may be exchanged with the Bureau of Land Management to assist in this acquisition.

B. Water and Sewer

The water and sewer facilities are adequate to meet existing projected needs in Rangely and Dinosaur.

C. Education

The Rangely and Dinosaur school facilities are adequate to meet present and projected needs. However, it is estimated the Rangely School District will require two additional teachers for the school year 1981-82 and four more in the year 1982-83. Dinosaur will require one additional teacher commencing in school year 1982-83. The Project will fund the respective districts' salaries for these teachers through the 1983-84 school year.

D. Transportation

The primary impact on transportation services by Project personnal and materials hauling will be increased congestion on the roads leading from housing areas to and from the Project sites. This will be mitigated by the use of personnel bus service from selected collection points to the work sites. The personnel bus service will be furnished by contract with public carriers or by Project-owned buses. In addition to relieving congestion, busing will save on energy resources and will also reduce major maintenance requirements on roads designed and built for limited traffic.

In coordination with the County, the Project will design and construct a new bridge over the White River and realign a Rio Blanco County road leading to the Deserado Mine.

E. Health Care

The Rangely area has ample physical capacity to take care of the additional personnel health care associated with the Project work force. The Project will participate in the financing of needed technical equipment and test facilities related to underground mining.

Emergency medical facilities will be provided by the Project at the principal work sites for "first aid" type treatments. This will include a registered nurse and/or emergency medical technician. The Project will have an ambulance at the work sites and will construct all-weather, lighted helipads for use with air emergency ambulance services.

The medical services will be supplemented through a comprehensive and energetic safety program. The Project Community Impact personnel will support local recruiting efforts to obtain and retain professionsls qualified in the medical specialities required.

F. Law Enforcement, Social Services, Fire Protection

The Project will provide funding for one additional Rangely policeman for the period July 1981 to July 1984 and for an additional patrol car with required specialized equipment. The Project will provide security for the coal mine site either directly or through contract and funding with the County Sheriff's Office.

The Project will provide funding for one Social Services' person for a two-year period starting in mid 1982.

Recreational facilities should pay their own way through participation fees.

A four-wheel drive, 500 gallon tank truck/pumper will be maintained at the mine site by the Project. Project personnel will be trained to serve as firemen to operate this equipment. Also, they will be encouraged to volunteer to serve with the local fire department to provide these services during off-work hours.

G. Social Integration

Project Community Impact Coordinators will push efforts to diffuse the newcomers throughout the communities to prevent development of "company town" attitudes. The Project will set up community information programs to acquaint new employees and their families with local laws and services as well as social and cultural activities.

H. General

The Project recognizes the need for advance planning to minimize Project impacts on local communities and their present way of life. At the present time, Rangely does not have a planner and the Rio Blanco County planning office has a minimum staff. The Project is prepared to supplement the Rangely and Rio Blanco County budgets through 1984 to pay one half the salaries of two planners - one for each organization - if the local governments are in agreement with this proposal and will fund the remainder of their salaries.

The Project will have personnel available to assist the local communities in handling the impact from the Project. It is contemplated their major contribution will be to assist local planners, promote community development and be a resource for federal and state grant information. As appropriate, they will provide expertise to prepare grant requests.

The suggested impact measures set forth above are based on the impact information contained in the DEIS and are for illustration purposes only. It is the intent of the Project to develop and implement a mitigation plan sufficient to provide reasonable solutions for all social and economic impact incurred by the County and by the municipalities as a result of the Moon Lake Project. Consequently, if such impact is greater than estimated by the DEIS, the Mitigation measures will be adjusted accordingly.

By the time the Project construction is completed, the revenue to the various taxing entities from the total Project (mine, railroad and transmission lines) advalorum taxes, severance taxes, sales taxes, and similar taxes related to the operating work force, will be suficient to mitigate any on-going impacts.

PROJECT IMPACT MITIGATION MEASURES

UTAH

A. Housing

The following table reflects the most recent figures, developed by Burns & McDonnell and concurred in by the Bureau of Land Management and Rural Electrification Administration, as being the required housing facilities to meet the impact the overall project, i.e. Moon Lake Power Plant and the Deserado Mine, will create in Ashley Valley (Vernal, Maeser, Naples and Jensen):

TABLE V

Housing Demand for Ashley Valley by Year

	1981	1982	1983	1984	1985
Single Family	23	48	84	107	81
Apartment	11	22	32	41	22
Mobile Home	43	89	124	158	76
RV and Trailer Pads	25	51	55	74	3

Based upon a review of existing housing, plans of private developers, and the interest shown by these developers, the Project will provide housing or guarantees for the housing quantities as listed in the following table:

TABLE VI

Housing Guarantees for Ashley Valley by Year

	1981	1982	1983	1984	1985
Single Family	15	33	58	71	50
Apartment	7	14	20	27	14
Mobile Home	35	70	95	118	55
RV and Trailer Pads	20	30	41	53	10

Single Family Housing: The Project will encourage private developers to provide the necessary single family housing by guaranteeing the sale of previously agreed upon, newly constructed houses. Project personnel will assist new employees to locate available lease/rental housing and sources of mortgage financing.

The Project will also construct some single family dwellings. These will then be sold or leased to the employees depending upon available mortgage money and interest rates.

A cost monitoring and inspection program will be implemented to assure the Project of reasonable housing cost, with adequate quantitiy and conformance with quality construction procedures.

Apartments: Local developers are prepared to construct the apartment units needed. The Project will provide rental guarantees.

Mobile Homes: Sufficient local developers are available to provide the necessary mobile homes. Contractual arrangements will provide for rental guarantees by the Project. Should additional mobile home housing be needed beyond what developers will provide, the Project is prepared to install the necessary units.

Recreational Vehicle/Trailer and Bachelor Quarters: In the Ashley Valley there are limited recreational vehicle/trailer park facilities available. Therefore, the Project is prepared to construct and operate such facilities and additionally will furnish single room, motel-type housing to accommodate single status construction workers. It is presently planned to provide six 6-unit mobile facilities for this purpose. An adjunct to this park will be a cafeteria to provide meals for single status construction workers. The Project will retain flexibility to adjust the number of RV/trailer pads to complement the motel-type units.

A housing office will be established by the Project for the purpose of managing Project-controlled housing, rentals of mobile homes and bachelor quarters, and the operation of the cafeteria.

B. Water and Sewer

The water and sewer facilities in Ashley Valley are not adequate at the present time to meet projected needs. Construction is underway (February 1981) on additional capacity and installation of an interconnecting pipeline to improve service south and west of Vernal City. Discussions are underway concerning the construction of a large scale water treatment plant.

Work is progressing on a new sewage lagoon system and some additional collector lines. Invitations for bids have been issued for phases IV, V and VI of the collector system and phase VII A invitations should be issued before the end of February 1981. Local officials have assured the Project that completion of these construction phases will provide adequate sewage facilities.

Grants and receipts from bond sales have provided funds for new water and sewer construction. The Project and work force personnel will pay connection fees and operating costs which will assist in retiring bonded indebtedness and funding O & M costs.

C. Education

The Uintah School District needs early assistance to meet a greatly overcrowded classroom condition. The District has requested that the Project undertake a joint venture with the District for the purpose of constructing a school building. Under the terms of the venture, Deseret would provide up to $1.5 in matching monies for the school project. The building would be situated on land acquired by the District. Deseret's undivided interest in the building would be leased to the District for school purposes at a rate sufficient to repay Deseret for its investment plus interest. Deseret is willing to accommodate the

the District's requirement on the terms set forth above.

The Uintah School District will require three additional teachers in school year 1981-82 and seven more in school year 1982-83 to meet Project induced student load. The Project will fund their salaries.

D. Transportation

The primary impact on transportation services by Project personnel and materials hauling will be increased congestion on the roads leading from housing areas to and from the Project sites. This will be mitigated by the use of personnel bus service from selected collection points to the work sites. The personnel bus service will be furnished by contract with public carriers or by Project-owned buses. In addition to relieving congestion, busing will save on energy resources and will also reduce major maintenance requirements on roads designed and built for limited traffic.

At the County's request, the Project has provided funds for preliminary design work in connection with a proposed new road leading south from Vernal to Bonanza. The road is required to meet the transportation needs associated with oil shale and other energy development in the County as well as the roads of the Project. The Project will provide further assistance to the County relative to such road in the form of loans, gurantees, and/or other appropriate forms of financial assistance.

E. Health Care

Uintah County has recently upgraded and expanded the hospital facilities in Vernal. This will provide adequate capacity to care for the needs of the Project workforce. However, there is a concern about the number of professional medical personnel available to provide medical care.

Emergency medical facilities will be provided by the Project at the work sites for "first aid" type treatments. This will include a registered nurse and/or emergency medical technician. The Project will have an abulance at the work sites and will construct all-weather, lighted helipads for use with air emergency ambulance services.

The medical services will be supplemented through a comprehensive and energetic safety program. The Project Community Impact personnel will support local recruiting efforts to obtain and retain professionals qualified in the medical specialities required.

F. Law Enforcement, Social Services, Fire Protection

The Project will provide funding for one additional Vernal policeman for the period July 1981 to July 1984 and for an additional patrol car with required specialized equipment. The Project will provide security for the plant site either directly or through contract and funding with the County Sheriff's Office.

The Project will provide funding for one Social Services' personnel for a two-year period starting in mid 1982.

Recreational facilities should pay their own way through participation fees.

A four wheel drive, 500 gallon tank truck/pumper and a hose truck with high pressure pump capability will be maintained at the plant site by the Project. Project personnel will be trained to serve as firemen to operate this equipment. Also, they will be encouraged to volunteer to serve with the local fire department to provide these services during off-work hours.

G. Social Integration

Project Community Impact Coordinators will push efforts to diffuse the newcomers throughout the communities to prevent development of a "company town" attitude. The Project will set up community information programs to acquaint new employees and their families with local laws and services as well as social and cultural activities.

H. General

The Project will have personnel available to assist the local communities in handling the impact from the Project. It is contemplated their major contribution will be to assist local planners, promote community development and be a resource for federal and state grant information. As appropriate, they will provide expertise to prepare grant requests.

The suggested impact measures set forth above are based on the impact information contained in the DEIS and are for illustration purposes only. It is the intent of the Project to develop and implement a mitigation plan sufficient to provide reasonable solutions for all social and economic impact incurred by the County and by the municipalities as a result of the Moon Lake Project. Consequently, if such impact is greater than estimated by the DEIS, the Mitigation measures will be adjusted accordingly.

By the time the Project construction is completed, the revenue to the various taxing entities from the total Project (mine, railroad and transmission lines) advalorum taxes, severance taxes, sales taxes, and similar taxes related to the operating work force, will be sufficient to mitigate any on-going impacts.

DESERET
Generation & Transmission Co-operative
8722 South 300 West ☐ Box BB ☐ Sandy, Utah 84070 ☐ (801) 566-1238

March 17, 1981

Mr. Greg Thayn, Team Leader
Moon Lake EIS
Bureau of Land Management
P. O. Box 768
Richfield, Utah 84701

Dear Mr. Thayn:

Deseret Generation & Transmission Co-operative (Deseret) is transmitting the attached information to provide a more detailed supplement to the Impact Mitigation Plan proposed on February 21, 1981.

These plans have been delayed in their development by difficulties experienced in working with the Rio Blanco County Commission.

Figure 1 indicates Deseret's estimated expenditures for Rio Blanco County, to include the special districts therein, and the Town of Rangely for the Socio-Economic impacts associated with the proposed mitigation plan. Comparable figures are shown for Vernal and Uintah County in Figure 3.

The final Socio-Economic mitigation plan will be developed in coordination with independent consultants appointed by each Deseret and Rio Blanco County as proposed in a meeting with representatives of the County on March 11, 1981.

Figure 2 provides additional information on revenues that would be generated by the Deserado Mine, railroad and appurtenant facilities, transmission lines, and the local portion of the Coal Severance tax. These revenues indicate that the local governments would start receiving surplus revenue from the project in 1983, developing to an annual surplus of $260,110 after 1985. Included are some of the calculations used to derive the projected revenues. Similar information is provided in Figure 4 for Uintah County. Additional revenues and costs associated with Unit 2 in Rio Blanco County are shown in Figure 2A. Tax flow from Unit 1 will more than mitigate the impact from Unit 2 in Uintah County as shown in Figure 4A.

We have also enclosed a list of special districts operating in Rio Blanco County. Inasmuch as they are political subdivisions of the State of Colorado, Deseret is working closely with them to assure their needs are met. We agree with the proposal made by Mayor Peggy Rector of Rangely that a formal organization of the districts would be most helpful. Our perception of how such an organization would function is enclosed.

Mr. Greg Thayn
March 17, 1981
Page 2

Deseret Generation & Transmission believes these figures and attached letters and memos indicate that the Company is approaching the problem of socio-economic mitigation in a responsible and realistic manner, giving full consideration to the impacts that will be encountered by Rio Blanco and Uintah Counties. These figures indicate that the project-derived revenues will more than adequately cover the socio-economic mitigating costs incurred by Rangely and Rio Blanco County during the operation of the project facilities. They will much more than meet the mitigation costs of Uintah County.

We hope this data will help in resolving the controversy surrounding the mitigation proposals and the fiscal impacts caused by the Moon Lake Project.

Sincerely,

Merrill J. Millett
General Manager

MJM/KMN/jg

cc: Larry Wolfe

Enclosures

DESERET PROPOSED

IMPACT MITIGATION SCHEDULE
FOR
RANGELY AND RIO BLANCO COUNTY

	1981-82	1982-83	1983-84	1984-85
EDUCATION				
Teachers' Salaries	$ 48,750	160,878	176,964	194,658
O&M	5,000	5,500	6,050	6,650
TRANSPORTATION				
Bridge and County Road	1,600,000	-	-	
HEALTH CARE				
Rangely Hospital List	635,000	-	-	-
Ambulance	50,000	-	-	-
LAW ENFORCEMENT				
Policemen's Salary	19,500	21,450	23,595	25,955
Vehicle	9,000	-	10,000	-
Special equipment (radio & light panel)	2,750	-	-	-
SOCIAL SERVICES				
Social Services Worker	-	19,356	21,292	23,421
FIRE PROTECTION				
500 gallon pumper/tanker	70,000	-	-	-
Fire Chief/Inspector	-	28,600	31,460	34,606
GENERAL				
Assistant Librarian	13,800	15,180	16,698	18,368
County Planner (1/2 salary)	13,325	14,658	16,123	17,736
Office Supplies	1,000	250	275	300
Rangely Planner (1/2 salary)	13,325	14,658	16,123	17,736
Office Supplies	1,000	250	275	300
Unspecified O&M, Rio Blanco	50,000	55,000	60,500	66,550
Unspecified O&M, Rangely	50,000	55,000	60,500	66,550
	$2,582,450	390,780	439,855	472,830

Note: Fringe benefits 30% of salary; inflation 10% per annum compounded $3,855,915

Figure 1

REVISED TABLE 4-20

Estimated Costs and Property and Severance Tax Revenues for Rio Blanco County - Bonanza Site Development (Unit 1)

Year	Revenue	Cost	Difference
1981	69,000 M	359,000	- 290,000
1982	249,000 M	762,000	- 513,000
1983	946,300	937,000	+ 9,300
	(440,000 M)		
	(13,900 TL)		
	(487,200 RR)		
	(5,200 S)		
1984	1,086,800	899,000	+ 187,800
	(566,000 M)		
	(13,900 TL)		
	(487,200 RR)		
	(19,700 S)		
1985	1,350,800	1,081,000	+ 269,800
	(830,000 M)		
	(13,900 TL)		
	(487,200 RR)		
	(21,100 S)		
1986	1,341,100	1,081,000	+ 260,100
	(807,000 M)		
	(13,900 TL)		
	(487,200 RR)		
	(33,000 S)		

Legend: M = Mine
TL = Transmission Lines
RR = Railroad
S = Severance Tax

The State of Colorado is projected to receive $2,571,400 during the period 1981-85 through its 3% state sales tax. Therefore, in addition to the above, projected mine purchases subject to sales tax would yield the following receipts for each 1% sales tax levy if such should be imposed by Rio Blanco County or the Town of Rangely.

1981	$ 21,000
1982	262,500
1983	311,767
1984	127,500
1985	134,367
	$857,134

NOTE: The above projected tax revenues only address levies on Project owned and controlled properties. No forecasted receipts are shown for ad valorem, sales and use taxes or other financial benefits which will come from Project employees and their families. It is assumed that inasmuch as the local governments are presently funded from on going tax programs, Project employees will provide adequate tax revenues to fund their proportionate share of costs of local government.

Figure 2

SEVERANCE TAX YIELD, DESERADO MINE

Moon Lake Power Plant Unit 1

Year	Tons of Coal Mined	Severance Tax $0.35 Ton	State Severance Tax Fund 50%	Department of Local Affairs 42.5%	Impacted Area 7.5%
1983	198,000	$ 69,300	$ 34,650	$ 29,452.50	$ 5,197.50
1984	752,000	263,200	131,600	111,860.00	19,740.00
1985	804,000	281,400	140,700	119,595.00	21,105.00
1986	1,259,000	440,650	220,325	187,276.25	33,048.75
1987	1,440,000	504,000	252,000	214,200.00	37,800.00
1988	1,300,000	455,000	227,500	193,375.00	34,125.00

NOTE: The consumption of 1.3 million tons of coal per annum would essentially continue through the life of Unit 1.

RIO BLANCO COUNTY

Ad Valorem Tax Yield Commencing 1983

Transmission Lines

Estimated Construction Costs		Assessment Factor 30%		Mill Levy 36.053		Tax Yield
$ 1,285,407.60	X	.30	X	.036053	=	$ 13,902.84

Railroad and Appurtenant Facilities

Estimated Construction Costs		Assessment Factor 30%		Mill Levy 36.053		Tax Yield
$45,043,000.00	X	.30	X	.036053	=	487,180.58

Figure 2 Continued

SEVERANCE TAX YIELD, DESERADO MINE

Moon Lake Power Plant Unit 2

Year	Tons of Coal Mined	Severance Tax $0.35 Ton	State Severance Tax Fund 50%	Department of Local Affairs 42.5%	Impacted Area 7.5%
1985	198,000	$ 69,300	$ 34,650	$ 29,452.50	$ 5,197.50
1986	752,000	263,200	131,600	111,860.00	19,740.00
1987	804,000	281,400	140,700	119,595.00	21,105.00
1988	1,300,000	455,000	227,500	193,375.00	34,125.00

NOTE: The consumption of 1.3 million tons of coal per annum would essentially continue through the life of Unit 2.

RIO BLANCO COUNTY

Ad Valorem Tax Yield Commencing 1985 (Unit 2)

1985 Estimated Construction Costs		Assessment Factor 30%		Mill Levy 36.053		Tax Yield
			Mine			
$ 40,000,000	X	.30	X	.036053	=	$ 432,636
			Railroad and Appurtenant Facilities			
$ 2,000,000	X	.30	X	.036053	=	$ 21,631.80

Figure 2A Continued

REVISED TABLE 4-32

Estimated Costs and Property and Severance Tax Revenues for Rio Blanco County - Bonanza Site Development (Unit 1 and 2)

Year	Revenue	Cost	Difference
1981	69,000 M	371,000	- 302,000
1982	266,000 M	882,000	- 616,000
1983	983,300	1,051,000	- 67,700
	(477,000 M)		
	(13,900 TL)		
	(487,200 RR)		
	(5,200 S)		
1984	1,152,800	1,178,000	- 25,200
	(632,000 M)		
	(13,900 TL)		
	(487,200 RR)		
	(19,700 S)		
1985	1,896,666	2,171,000	- 274,334
	(1,347,636 M)		
	(13,900 TL)		
	(508,832 RR)		
	(26,298 S)		
1986	2,024,111	2,012,000	+12,111
	(1,448,636 M)		
	(13,900 TL)		
	(508,832 RR)		
	(52,740 S)		

Legend: M = Mine
TL = Transmission Lines
RR = Railroad
S = Severance Tax

In addition to the above, projected mine purchases for Units 1 and 2 subject to sales tax would yield the following receipts for each 1% sales tax levy if such should be imposed by Rio Blanco County or the Town of Rangely.

1981	$ 21,000
1982	262,500
1983	311,767
1984	207,500
1985	174,367
	$977,134

NOTE: The above projected tax revenues only address levies on Project owned and controlled properties. No forecasted receipts are shown for ad valorem, sales and use taxes or other financial benefits which will come from Project employees and their families. It is assumed that in as much as the local governments are presently funded from on going tax programs, Project employees will provide adequate tax revenues to fund their proportionate share of costs of local government.

Figure 2A

DESERET PROPOSED IMPACT MITIGATION SCHEDULE
FOR
VERNAL AND UINTAH COUNTY

IMPACT MITIGATION SCHEDULE

	1981-82	1982-83	1983-84	1984-85
EDUCATION				
Teachers salaries	73,125	268,130	294,940	324,430
TRANSPORTATION				
Bridge & County Road	8,500,000	-	-	-
LAW ENFORCEMENT				
Policemen salary	19,500	21,450	23,595	25,955
Vehicle	9,000	-	10,000	-
Special equipment (radio & light panel)	2,750	-	-	-
SOCIAL SERVICES				
Social Services Worker	-	19,356	21,292	23,421
FIRE PROTECTION				
500 gallon pumper/tanker	70,000	-	-	-
1,000 gallon tank truck/ pumper	100,000	-	-	-

Figure 3

REVISED TABLE 4-20

Estimated Costs and Property and Severance Tax Revenues for Uintah County - Bonanza Site Development (Unit 1)

Year	Revenue	Cost	Difference
1981	605,000	304,000	+ 301,000
1982	2,426,000	609,000	+ 1,817,000
1983	5,229,784 (4,842,000 P) (194,194 TL) (193,590 RR)	915,000	+ 4,314,784
1984	5,137,784 (4,750,000 P) (194,194 TL) (193,590 RR)	1,197,000	+ 3,940,784
1985	4,826,327 (4,616,000 P) (105,327 TL) (105,000 RR)	629,000	+ 4,197,327
1986	4,692,327 (4,482,000 P) (105,327 TL) (105,000 RR)	629,000	+ 4,063,327

Legend: P = Plant
TL = Transmission Lines
RR = Railroad

Ad Valorem Tax Yield Commencing 1983

Transmission Lines

	Estimated Construction Costs		Assessment Factor 20%		Mill Levy (varies)		Tax Yield
1983	$15,046,808	X	.20	X	.06453	=	$194,194
1984	15,046,808	X	.20	X	.06453	=	194,194
1985	15,046,808	X	.20	X	.035	=	105,327

Railroad

1983	15,000,000	X	.20	X	.06453	=	193,590
1984	15,000,000	X	.20	X	.06453	=	193,590
195	15,000,000	X	.20	X	.035	=	105,000

Figure 4

REVISED TABLE 4-32

Estimated Costs and Property and Severance Tax Revenues for Uintah County - Bonanza Site Development (Unit 1 and 2)

Year	Revenue	Cost	Difference
1981	605,000	295,000	+ 310,000
1982	2,776,000	702,000	+ 2,074,000
1983	6,253,784	1,236,000	+ 5,017,874
	(5,866,000 P)		
	(194,194 TL)		
	(193,590 RR)		
1984	7,071,784	1,812,000	+ 5,259,784
	(6,684,000 P)		
	(194,194 TL)		
	(193,590 RR)		
1985	8,501,327	2,086,000	+ 6,415,327
	(8,291,000 P)		
	(105,327, TL)		
	(105,000 RR)		
1986	8,863,327	1,922,000	+ 6,941,327
	(8,653,000 P)		
	(105,327 TL)		
	(105,000 RR)		

Legend: P = Plant
TL = Transmission Lines
RR = Railroad

Ad Valorem Tax Yield Commencing 1983

Transmission Lines

	Estimated Construction Costs		Assessment Factor 20%		Mill Levy (varies)		Tax Yield
1983	$15,046,808	X	.20	X	.06453	=	$194,194
1984	15,046,808	X	.20	X	.06453	=	194,194
1985	15,046,808	X	.20	X	.035	=	105,327

Railroad

	Estimated Construction Costs		Assessment Factor 20%		Mill Levy (varies)		Tax Yield
1983	15,000,000	X	.20	X	.06453	=	193,590
1984	15,000,000	X	.20	X	.06453	=	193,590
1985	15,000,000	X	.20	X	.035	=	105,000

Figure 4A

REVISED TABLE 4-22
ESTIMATED COSTS AND TAX REVENUES FOR UINTAH AND RIO BLANCO COUNTIES RANGELY SITE DEVELOPMENT (UNIT 1)

	RIO BLANCO			UINTAH		
Year	Revenue (Plant & Mine)	Costs	Difference	Revenue	Costs	Difference
1981	735,000	473,000	+ 262,000		222,000	- 222,000
1982	2,197,000	975,000	+1,222,000		456,000	- 456,000
1983	4,260,044	1,377,000	+2,883,044	239,956	598,000	- 358,044
	(4,119,000 PM)			(239,956 TL)		
	(135,846 TL)					
	(5,198 S)					
1984	7,708,586	1,612,000	+6,096,586	239,956	685,000	- 445,044
	(7,553,000 PM)			(239,956 TL)		
	(135,846 TL)					
	(19,740 S)					
1985	7,776,951	1,283,000	+6,493,951	239,956	484,000	- 244,044
	(7,620,000 PM)			(239,956 TL)		
	(135,846 TL)					
	(21,105 S)					
1986	7,568,895	1,283,000	+6,285,895	130,148	484,000	- 353,852
	(7,400,000 PM)			(130,148 TL)		
	(135,846 TL)					
	(33,049 S)					

Legend:
PM = Plant and Mine
S = Severance Tax
TL = Transmission Lines

Figure 5

REVISED TABLE 4-34
ESTIMATED COSTS AND TAX REVENUES FOR UINTAH AND RIO BLANCO COUNTIES (RANGELY SITE UNITS 1 & 2)

	RIO BLANCO			UINTAH		
Year	Revenue (Plant & Mine)	Costs	Difference	Revenue	Costs	Difference
1981	735,000	470,000	+ 265,000		224,000	- 224,000
1982	2,465,000	1,130,000	+1,335,000		524,000	- 224,000
1983	5,805,046	1,713,000	+4,092,046	239,956	759,000	- 519,044
	(5,664,000 PM)			(239,956 TL)		
	(135,846 TL)					
	(5,200 S)					
1984	10,621,546	2,298,000	+8,323,546	239,956	1,004,000	- 764,044
	(10,466,000 PM)			(239,956 TL)		
	(135,846 TL)					
	(19,700 S)					
1985	13,275,144	3,161,000	+10,114,144	130,148	1,371,000	-1,240,852
	(13,113,000 PM)			(130,148 TL)		
	(135,846 TL)					
	(26,298 S)					
1986	13,052,586	2,957,000	+10,095,586	130,148	1,240,000	-1,109,852
	(12,864,000 PM)			(130,148 TL)		
	(135,846 TL)					
	(52,740 S)					

Legend:
PM = Plant and Mine
S = Secerance Tax
TL = Transmission Lines

Figure 6

DESERET
Generation & Transmission Co-operative
8722 South 300 West ☐ Box BB ☐ Sandy, Utah 84070 ☐ (801) 566-1238

MEMORANDUM

TO: LYNN W. MITTON

FROM: ELGIN WARD

DATE: February 26, 1981

RE: STATUTORY AUTHORIZATION FOR COLORADO SPECIAL DISTRICT AND SPECIAL DISTRICTS OPERATIVE IN RIO BLANCO COUNTY

A. Statutory Authorization for Colorado Special District

839 - 2156 Local Government - Special Service Districts

Title 32, Special Districts

B. Special Districts Operative in Rio Blanco County

1. Rangely Cemetery
2. Meeker Rural Fire
3. Rangely Rural Fire
4. Rangely Hospital District
5. Western Rio Blanco Metropolitan Recreation & Park
6. Piceance Creek Pest Control District
7. Meeker Sanitation
8. Rangely Sanitation District
9. Colorado River Water Conservation District
10. Yellow Jacket Water Conservation District
11. Water Users Association No. One

*The above list includes only those Special Districts that levy property taxes. It is possible (but not likely) that other special service districts exist in Rio Blanco County which don't levy property tax.

FEW:ef

cc: Sterling Merrell

MEMORANDUM

To: Merrill J. Millett
From: J. Sterling Merrill
Date: February 23, 1981

Subject: Political Subdivision Task Force

I perceive a Political Subdivision Task Force (for want of a better name) to function basically as follows:

a. Formalize the organization to include an organizational agreement, adoption of by-laws, appointment or election of officers, development of a meeting schedule with agenda, etc.

b. A typical meeting agenda would detail any new project planned to be undertaken by any one of the members. A discussion would develop the impact such a project would have on any other member(s). For example, construction of a helipad would be of interest to the Fire District and the Recreation District as well as the Town of Rangely. An addition to the Library would be of interest to the Recreation District, the Fire District and the Town of Rangely.

c. After determining the impact any given project would have on related Task Force members, there would be a need to discuss financing not only the basic project but also the means of financing related impacts on other members.

The method of financing would be influenced by the proposed time schedule for the project, the financial condition of the affected members, and ultimately the basic reason for the project. If it was determined to be a Project induced requirement, we could be asked to finance or assist in financing all or a portion of the total project for all members.

I foresee that in the early phases of a Task Force there would be many poorly planned project proposals, but as the organization progressed, greater competence and improved planning would become evident. The major benefit to the people in the area would be an improved approach to address problem areas and solve them. The major benefit to the Project would be coordinated actions to mitigate Project induced impacts.

APPENDIX 12

Section A: Numerical Value Procedure for Evaluating the Proposed Power Transmission Corridor and Alternatives

An error was made in the calculation for visual resources along the unit 1 route from the power plant site to Tank Hollow via Upalco-Fruitland. Two miles of modification and maximum modification classification were changed to a retention classification (error due to a milepost miscalculation).

Table D, Derivation of Determinate Scores by Routing Alternative, and Table H, Alternative Analysis and Evaluation for Unit 1 Routing Alternatives, were adjusted to reflect the corrected visual resource data for Upalco-Fruitland and Upalco-Sowers unit 1 routing alternatives. Appropriate changes were made in visual resource miles, total and adjusted impact scores, and per mile scores.

The results of these changes are as follows:

Bonanza Plant Site

Bonanza Unit 1 Routing Alternatives

The total adjusted impact score indicate that for the:

Bonanza to Tank Hollow Link (345- 135-kV System)

The Upalco-Sowers alternative would create the fewest environmental impacts. The impact score for this alternative shows 0.6-percent fewer impacts than the applicant-proposed corridor (Upalco-Fruitland), 18.4-percent fewer impacts than the Castle Peak-Fruitland alternative, and 23.8-percent fewer impacts than the Castle Peak-Sowers alternative.

The lower visual resource score for the Upalco-Sowers alternative changed from 1-percent more impacts than the applicant-proposed corridor to less than 1-percent fewer impacts.

Impact scores for vegetation cover and soil erosion for the Upalco-Sowers alternative are still higher than those scores for the applicant-proposed corridor. All other resource scores for the Upalco-Sowers alternative are lower than those scores for the applicant-proposed corridor.

Table A, Comparative Summary of Total Adjusted Impact Scores for Unit 1 Routing Alternatives, has been adjusted to reflect the above changes in environmental rating scores. The original unit 1 Bonanza to Tank Hollow via Upalco-Fruitland impact score changed from 1,978 to 1,997. The revised Table A now shows the unit 1 Upalco-Sowers route from Bonanza with a revised score lower than 1,997. The original unit 1 Rangely to Tank Hollow via Upalco-Fruitland impact score changed from 2,457 to 2,475. This change did not require a Table A revision for the unit 1 Rangely transmission route scores.

A technical report on slump and landslide prone areas along and adjacent to segment 25 (Dairy Fork) has been prepared by the Manti-LaSal National Forest since the printing of the Draft EIS. The report states that construction activities in the vicinity of segment 25 would create extensive surface disturbance; in addition, instability and slope failures could possibly be induced by construction along the segment.

As a result of the referenced technical report, the following changes have been made:

Tank Hollow to Mona Link (345-kV System)

The numerical value procedure shows that the applicant-proposed corridor (Dairy Fork) would create the fewest environmental impacts. The Utah Valley

APPENDIX 12 (continued)

TABLE A

Comparative Summary of Total Adjusted Impact Scores for Unit 1 Routing Alternative

Routes with Fewest Environmental Impacts		Plant Site			Routes with Fewest Environmental Impacts
		Bonanza	Rangely		
Upalco-Sowers (345-138-kV)	=	1,985	2,452	=	Upalco-Sowers (345-138-kV)
Dairy Fork[a] [b](345-kV)	=	889	889	=	Dairy Fork[a] (345-kV)
Bonanza to Rangely[a] via Little Bonanza (138-kV)	=	287			
Subtotal		3,161	3,341		
Routes Necessary Under Any Alternative Transmission System					Routes Necessary Under Any Alternative Transmission System
Bonanza-Vernal (138-kV)	=	297	712	=	Rangely-Vernal (138-kV)
			403	=	Rangely-Rangely sub.
Total Score		3,458	4,456		

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[a] Applicant's proposal.

[b] Score does not reflect new resource information for slump and landslide prone areas on the Dairy Fork Route.

score indicates 10-percent more impacts while the Thistle Canyon score indicates 1-percent more impacts.

Fewer impacts on visual resources, land uses, and fish are the reasons for the differences in scores between the Dairy Fork and Utah Valley corridors, the largest difference being impacts on visual resources. The 1-percent difference in impact scores between the Dairy Fork and Thistle Canyon corridors is spread across four of the seven measured resources: erosion hazard, visual resources, wildlife, and fish. It is noted that the adjusted score per mile and impact score for Dairy Fork and Thistle Canyon are equal.

The numerical value procedure does not reflect the unstable surficial geologic condition from milepost 1 to milepost 10 of segment 25. This 9-mile segment portion and adjacent terrain exhibit clear evidence of faulting and associated surficial instability. Construction activities in the area in question would create extensive surface disturbances due to steep and dissected terrain features. It would be possible that instability and slope failures would be induced by construction along this segment.

APPENDIX 19

APPENDIX 19, TEXT REVISION

1. Page R-113

Add second and third sentence under "Soils", as follows: "Twelve miles of segment 11 (Sheep Creek Canyon) and 9 miles of segment 25 (Dairy Fork) are extremely erosive, unstable, and prone to slumping and landslides, in particular, on dipslopes. A technical report on slump- and land-slide-prone areas in mountainous terrain (segment 25) has been prepared by the USDA, Forest Service, Manti-LaSal National Forest (McGarry and Reed, 1981).

APPENDIX 20

Net Energy Analysis and Cost Comparison of Moon Lake Project Alternatives

In net energy analysis, the energy and material inputs and outputs of a production process are quantified and analyzed to answer the question, "How much energy is required to produce the product?"

The Colorado School of Mines Research Institute (CSMRI) (1980) prepared a net energy analysis of the Moon Lake project. That study examined the resources necessary to build and operate both 400-MW units of the coal-to-electricity system. The materials needed to construct and operate the system (concrete, steel, trucks, pipe, wire, etc.) were expressed in terms of the number of British thermal units (Btus) of energy required to manufacture those materials from raw resources (e.g., ore in the ground). The energy sequestured in the materials used in construction and operation are indirect energy inputs to the system.

Direct energy inputs (gasoline, diesel, coal, electricity, etc.) were also expressed in terms of Btu equivalents, as were energy losses (coal not recovered during mining, coal lost during preparation, and internally consumed energy).

The annual inputs, outputs, and losses during the electrical production process were then compared for each alternative in terms of billions (10^9)of Btus (10^9 Btu is equivalent to 50 tons of coal or 7,200 gallons of diesel fuel). The direct and indirect energy requirements for construction of the system were apportioned over the 35-year life of the system in order to allow comparison on an annual basis.

The relative efficiencies of the alternative system components are as follows:

Coal Source: Coal source data were based on construction and operation of the Deserado Mine compared with coal obtained from the Danforth Hills No. 3 surface mine near Meeker, Colorado. Coal recovered from the Deserado Mine would require less investment of external energy and materials. However, unrecovered coal (coal lost as a result of the mining process) would be approximately 5 times greater for the Deserado Mine than the Danforth Hills No. 3 mine (see table A).

Coal Preparation. Energy and material requirements for coal preparation (1,282.9 X 10^9 Btu/yr) and preparation loss (5,650 X 10^9 Btu/yr) would be the same regardless of coal source.

Coal Transport. On the basis of external inputs, the electric railroad ranks first and the conveyor belt second in energy efficiency for the Bonanza plant site. The conveyor is the most energy efficient system for the Rangely site (see table B). Energy inputs for coal transportation would be less if the plant were located on Rangely. The truck haul of open market coal would require the most energy inputs.

Generating Plant. Coal inputs, external energy and material inputs, energy output and generating loss would be the same for both the Bonanza and Rangely plant site (in 10^9 Btu/yr):

APPENDIX 20 (continued)

Inputs		Outputs	
External		Generation Loss	40,090
Energy	37.5	Electrical Output	16,720
Materials	549.8		
Total	587.3		
Coal input	56,810		

TABLE A

Coal Source Energy Comparison
(10^9 Btu/yr)

	Deserado Coal Mine			Open Market Coal[a]		
	Energy	Materials	Total	Energy	Materials	Total
Extraction Requirements[b]	408.9	76.0	484.9	1,090.0	271.4	1,361.4
Coal in Place			112,500.0			73,570.0
Coal Extracted			62,460.0			62,460.0
Unrecovered Coal[c]			50,080.0			11,110.0

[a] Based on coal from the Danforth Hills No. 3 surface mine near Meeker, Colorado.

[b] External energy and material inputs required to mine the coal.

[c] Unrecovered coal is coal made unavailable as a result of extracting part of the deposit. The amount unrecovered is a function of the character of the deposits (depth and width of seams), mining method, and economic constraints.

Water Pipeline. Energy requirements for construction and operation of the water pipeline to either plant site would be less if the White River were the water source (see table B).

Electric Transmission. Data on transmission line requirements were based on the applicant-proposed routes. Line construction and operation requirements would be greater if the plant were located at Rangely (see table B). Transmission losses from each plant site would be as follows:

Bonanza - 303.5 X 10^9 Btu/yr

Rangely - 393.0 X 10^9 Btu/yr

TABLE B

Direct and Indirect[a] Energy Requirements of Moon Lake Project Alternatives (10^9 Btu/year)

Alternative	Bonanza Plant Site			Rangely Plant Site		
	Energy	Materials	Total	Energy	Materials	Total
Coal Transport						
Deserado Coal						
Railroad	163.4	27.5	190.9	N/A	N/A	N/A
Conveyor	181.2	21.3	202.5	36.5	2.9	39.4
Slurry Pipeline	721.0	16.2	737.2	N/A	N/A	N/A
Off-Highway Truck	436.0	82.0	518.0	55.1	14.6	69.7
On-Highway Truck	475.5	43.4	518.9	68.0	10.4	78.4
Open-Market Coal[b]	1,188.0	45.6	1,233.6	890.0	31.9	922.8
Water Pipeline						
Green River Source	301.2	12.3	313.5	526.1	26.9	553.0
White River Source	187.7	7.4	195.1	140.5	5.8	146.3
Electrical Transmission						
Energy Requirements[c]	3.1	95.1	98.2	3.1	119.1	122.2

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[a] Indirect energy is the energy sequestered in the concrete, wire, trucks, steel, etc., required to construct and operate the system.

[b] Open market coal data is based on on-highway truck haul of coal obtained from the Danforth Hills No. 3 surface mine near Meeker, Colorado.

[c] Requirements are based on applicant-proposed routes.

These losses are based on the length of applicant-proposed lines (457 miles from Bonanza; 578 miles from Rangely). Increasing or decreasing the transmission distances would cause corresponding increases or decreases in transmission loss at the following rates:

From Bonanza - 664.1 million Btu/mi/yr
From Rangely - 679.9 million Btu/mi/yr.

Conclusions. The applicant-proposed coal-to-electricity system is depicted in Appendix figure 1. It shows the energy and material inputs, losses, and system output for each operational stage. Table C compares the external energy and material requirements for the applicant-proposed Bonanza and applicant-preferred Rangely plant site systems. While energy losses (unrecovered coal, coal preparation, and generation loss) and electrical output would be identical for each site, the Rangely system would require less external energy and material inputs (306.3 X 10^9 Btu per year). Comparison of the total external energy and material inputs for the applicant-proposed systems shows an 8.1-percent advantage for the Rangely site (2,663.0 X 10^9 Btu versus 2,957.7 x 10^9 Btu for Bonanza). However, when the coal energy inputs at the coal preparation stage (62,460 x 10^9 Btu) are added to the comparison, the advantage for Rangely drops to less than 0.47 percent.

It is noted that the Rangely plant site would save approximately 190 to 300 X 10^9 Btu/yr in external energy and material inputs; however, transmission losses from the Bonanza site would be less (303.5 X 10^9 versus 393.0 X 10^9 Btu/yr). Thus the net electrical energy deliverable from the substations would be 89.5 X 10^9 Btu/yr more if the Bonanza plant site were utilized.

Clearly, factors other than energy analysis must be considered in the final decision on plant siting and system design/configuration. Such factors as costs, environment, energy mix, governmental regulations and incentives, available water, local attitudes and socioeconomic impacts, and needs for energy must be considered in the final decision.

Cost Comparison of Moon Lake Project Alternatives

Preliminary estimates of the capital and operating cost for Moon Lake project plant construction and raw material supply system alternatives are shown in table D. On the basis of those cost estimates, there would be substantial savings in construction and operation of the raw material supply systems if the plant were constructed at Rangely. The capital costs of the proposed coal transport and water supply systems for the applicant-proposed Bonanza site would exceed the applicant-preferred Rangely site systems by approximately $80,107,000. The annual operating costs of the Bonanza raw material supply systems would be $2,615,000 greater than the Rangely systems. The estimated generating station construction costs are approximately $9,890,000 greater for the Rangely site. Generating station operating costs would be approximately equal.

Plant Construction

The plant construction costs shown in table D are for unit 1 labor and materials only and do not include engineering, legal, insurance, tax, overhead, and associated costs. Site preparation costs are included and constitute nearly $7 million of the cost difference between Bonanza and Rangely.

TABLE C

Comparison of Inputs and Losses for Plant Site Alternatives[a]
(10^9 Btu/yr)

	Bonanza Plant Site				Rangely Plant Site			
	External Inputs				External Inputs			
System Element	Energy	Materials	Total	Losses[b]	Energy	Materials	Total	Losses[a]
Deserado Coal Mine Operations	408.9	76.0	484.9	50,080.0	408.9	76.0	484.9	50,080.0
Coal Preparation	1,256.0	26.9	1,282.9	5,650.0	1,256.0	26.9	1,282.9	5,650.0
Coal Transport[c]	163.4	27.5	190.9	--	36.5	2.9	39.4	--
Generating Plant Operation[d]	37.5	549.8	587.3	40,090.0	37.5	549.8	587.3	40,090.0
Water Pipeline Operation[e]	301.2	12.3	313.5	--	140.5	5.8	146.3	--
Electrical Transmission	3.1	95.1	98.2	303.5	3.1	119.1	122.2	393.0
Totals	2,170.1	787.6	2,957.7	96,123.5	1,882.5	780.5	2,663.0	96,213.0

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[a] The table compares the applicant proposed system for Bonanza and the applicant preferred system for Rangely. Both systems would have identical outputs of 16,720 X 10^9 Btu equivalents of electricity.

[b] The hydroelectric power losses due to the project are not included. The 17,470 acre-feet of water used each year by the generating plant at either site would reduce downstream Colorado River hydropower production by approximately 20 MW (68.3 X 10^9 Btu).

[c] Railroad for Bonanza, overland conveyor for Rangely.

[d] Electrical output would be 16,720 X 10^9 Btu/yr from either site.

[e] Green River water source for Bonanza; White River water source for Rangely.

APPENDIX 20 (continued)

TABLE D

Preliminary Cost Estimates Plant Site and Raw Material Supply System Alternatives[a] ($1,000)

Alternative	Bonanza Site	Rangely Site
Generation Station[b,c]		
Capital	434,540[b]*	444,430**
Operating	8,597*	8,597**
Deserado Mine*		
Capital	122,000	122,000
Operating	45,900	45,900
Coal Transportation		
Railroad		
Capital	66,408*	N/A
Operating	2,298*	N/A
Conveyor		
Capital	31,523	4,602[b]**
Operating	1,566	175[b]**
Slurry Pipeline		
Capital	38,341	N/A
Operating	3,114	N/A
On-Highway Truck[d]		
Capital	3,916	1,305
Operating	7,113	1,704
Off-Highway Truck[d]		
Capital	9,874	2,633
Operating	14,157	2,068
Open-Market Source		
Capital	11,747	5,839
Operating	19,557	11,941
Water Source[b]		
Green River		
Capital	22,457*	42,195
Operating	658*	1,135
Taylor Draw Reservoir[e]		
Capital	N/A	4,696
Operating	N/A	166

(continued)

APPENDIX 20, TABLE D (continued)

Alternative	Bonanza Site	Rangely Site
Wolf Creek Reservoir[e]		
Capital	N/A	4,696**
Operating	N/A	166**

Source: Burns and McDonnell, 1980e; Ford, Bacon and Davis, 1979.

[a] Capital and 1-year operating costs. Two 400-MW units in operation except as noted.

[b] Unit 1 costs only.

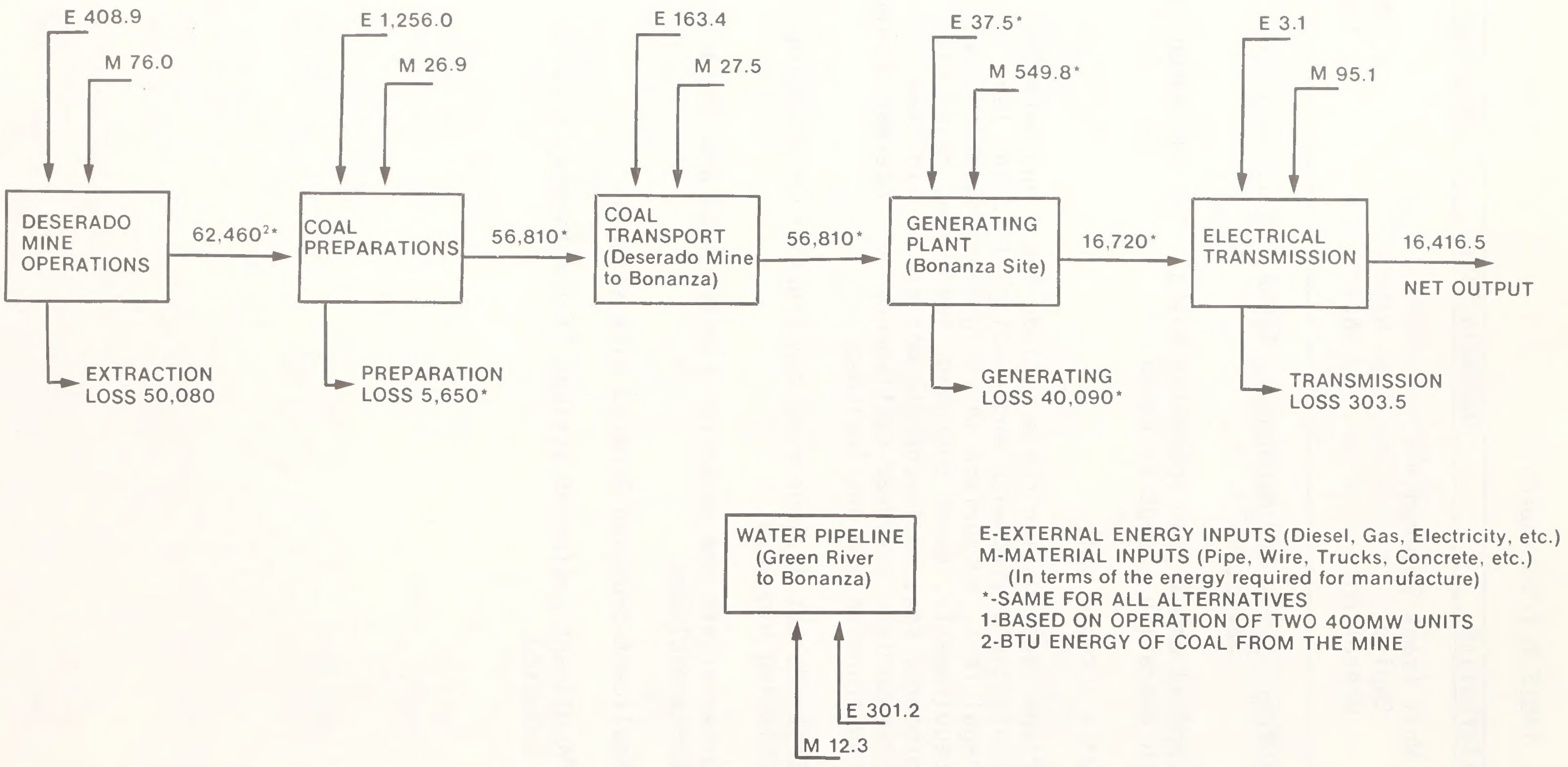
[c] Plant construction costs include labor and materials. Costs associated with engineering, land and land leases, legal fees, subsurface investigations, working capital requirements, owner overhead, insurance, sales tax, property tax, socioeconomic mitigation, initial inventories, overhead contingency, or interest during construction are not included.

[d] Costs do not include road construction or upgrading of existing highways.

[e] Water rights and reservoir construction and operation costs excluded.

*Applicant-proposed Bonanza site systems.

**Applicant-preferred systems if the Rangely site is selected.


E 408.9
M 76.0
DESERADO MINE OPERATIONS
EXTRACTION LOSS 50,080
62,460²*
E 1,256.0
M 26.9
COAL PREPARATIONS
PREPARATION LOSS 5,650*
56,810*
E 163.4
M 27.5
COAL TRANSPORT (Deserado Mine to Bonanza)
56,810*
E 37.5*
M 549.8*
GENERATING PLANT (Bonanza Site)
GENERATING LOSS 40,090*
16,720*
E 3.1
M 95.1
ELECTRICAL TRANSMISSION
TRANSMISSION LOSS 303.5
16,416.5
NET OUTPUT
WATER PIPELINE (Green River to Bonanza)
E 301.2
M 12.3

E-EXTERNAL ENERGY INPUTS (Diesel, Gas, Electricity, etc.)
M-MATERIAL INPUTS (Pipe, Wire, Trucks, Concrete, etc.)
(In terms of the energy required for manufacture)
*-SAME FOR ALL ALTERNATIVES
1-BASED ON OPERATION OF TWO 400MW UNITS
2-BTU ENERGY OF COAL FROM THE MINE

APPENDIX FIGURE 1

**APPLICANT PROPOSED
COAL-TO-ELECTRICITY SYSTEMS
INPUTS, OUTPUTS AND LOSSES (10^9 BTU/YEAR)**

Excavation at Rangely would be more difficult (due to a greater percentage of rock excavation) and require movement of approximately 25-percent more material. The cost differential would be greater if the costs of substructures at Rangely were included. However, estimates of these costs were available for only the Bonanza site (Burns and McDonnell, 1980e).

Coal Transport

Bonanza Plant Site

Comparison of coal transport alternative capital costs shows the on-highway truck haul alternative would have the least initial (capital) cost. However, when the annual operating costs are included comparison shows that the railroad and conveyor would be the most economic methods of coal transport from the Deserado Mine.

Rangely Plant Site

Coal transport capital and operating costs would be substantially less if the plant were located at the Rangely site. The conveyor would constitute the most economic method for the Deserado Mine to Rangely site coal transport.

Water Source

Costs shown do not include the cost of purchasing water rights or water. Capital and operating costs of the water system would be less at the Bonanza plant site if the White River were the water source. The Wolf Creek Reservoir would be the least costly source of water for the Rangely site. This cost would be paid by the Colorado River Water Users Association No. 1 rather than by Deseret.

Transmission System

Construction costs of transmission system alternatives are shown in table E. Construction costs favor the Bonanza plant site because of least distance. The applicant-proposed routes are the least costly for either plant site.

These construction cost estimates were provided by Burns and McDonnell (1980e). They were compared with estimates based on Western Area Power Administration (WAPA) data for construction of 138- and 345-kV transmission lines and found to be 10- to 30-percent less in most cases. Helicopter construction would be required on the Ashley, Manti-LaSal, and Uinta National Forests. The costs shown on Table E are associated with helicopter construction for those segments and mileage involved. Cost data was provided by Utah Power and Light Company from records of actual helicopter construction projects during 1980.

APPENDIX 20 (concluded)

TABLE E

Transmission System Construction and R/W Costs ($1,000)

	Bonanza Site	Rangely Site	Helicopter Construction Required	
			Segment	Miles
UNIT 1				
345-kV to Tank Hollow				
138-kV to Upalco				
via Upalco-Fruitland[a,b]	$30,862	$39,279	11	18
via Castle Peak-Sowers Canyon[b]	31,090	42,051	19	6
via Upalco-Sowers Canyon[b]	32,411	40,817	19	6
via Castle Peak-Fruitland	28,845	38,987	--	--
Tank Hollow-Mona Substation (345-kV)				
via Dairy Fork[a,b]	11,792	11,792	25	9
via Thistle Canyon[b]	11,885	11,885	20	8.5
via Utah Valley[b]	17,033	17,033	21	7.5
Price Canyon to Water Hollow (345-kV)				
via Eccles Canyon[b]	10,631	10,631	37	8
via Sowers Canyon/Dairy Fork[b]	15,070	15,070	19 & 25	15
via Sowers Canyon/ Thistle Canyon[b]	15,143	15,143	19 & 20	14.5
138-kV to Vernal Substation[a]	2,629	5,599	--	--
138-kV to Rangely Substation[a]	--	1,598	--	--
via Little Bonanza[a]	2,443	--	--	--
via Mellen Hill	2,649	--	--	--
UNIT 2				
345-kV to Mountain Green				
via Lone Tree[a,b]	35,487	37,678	35	8
via Upalco-Fruitland	33,612	36,777	--	--
via Castle Peak-Fruitland	33,482	37,297	--	--
Mountain Green to Ben Lomond[a]	9,425	9,425	--	--
Mona to Ben Lomond	59,583	59,583		

Source: Burns and McDonnell, 1980e.

[a] Applicant-proposed route.

[b] Includes costs for required helicopter construction across Unita, Ashley, and Manti-LaSal National Forests.

APPENDIX 23

United States Department of the Interior
FISH AND WILDLIFE SERVICE
AREA OFFICE COLORADO -UTAH
1311 FEDERAL BUILDING
125 SOUTH STATE STREET
SALT LAKE CITY, UTAH 84138

IN REPLY REFER TO: (ES)

December 11, 1980

MEMORANDUM

TO: State Director
Bureau of Land Management
Salt Lake City, Utah

FROM: Area Manager
Fish and Wildlife Service
Salt Lake City, Utah

SUBJECT: Moon Lake Power Plant Project

In response to your memorandum of August 27, 1980, and in compliance with the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et. seq.) we are providing this technical assistance report on the subject project.

As discussed with Mr. Don Cain of your environmental staff our analysis will focus on potential impacts to fish and wildlife resources likely to occur with full implementation of the applicant's proposal as described in the PDEIS. Alternatives to the applicant's preferred course of action, particularly the development of alternate water sources, are currently under separate EIS review or would require additional environmental analyses beyond the scope of the Moon Lake EIS and therefore will not be discussed. If the applicant modifies its current project plans we will update this report accordingly at that time.

Our analysis is limited by the level of information provided us by BLM.

This report will cover project related coal mining activity only as it relates to conveyance methods and land and water needs associated with Moon Lake Project development. Site specific evaluation of impacts associated with mining activities will be assessed through coordination with BLM and OSM pursuant to our Memoranda of Understanding with them.

Possible impacts to threatened and endangered species will be specifically addressed in our biological opinion under authority of Section 7 of the Endangered Species Act of 1973.

This report has been reviewed by both the Colorado Division of Wildlife and the Utah Division of Wildlife Resources.

We appreciate the opportunity to provide these preliminary comments and look forward to assisting you in the future in the development of an equitable mitigation plan for the proposed Moon Lake project.

Robt H. Shields

Reptiles utilize virtually all habitats within the proposed project area with the exception of the higher elevations along the electrical transmission system. Common reptiles include desert short-horned lizard, northern sagebrush lizard, northern whiptail, Northern side-blotched lizard, midget faded rattlesnake, wandering garter snake, and Utah milk snake.

Amphibians are very limited in distribution within the project area and are primarily found in close association with water. The leopard frog, Woodhouse's toad, and various salamanders inhabit wet habitat scattered throughout the project area.

A small herd of approximately 30 to 40 wildhorses are currently utilizing about 1,700 acres of the Bonanza power plant site. Although they do not water on the site they graze here regularly while in transit to water holes on either side.

Impacts

The proposed plan of development preferred by Deseret will result in the temporary and/or permanent alteration of approximately 11,386 acres of land. This figure excludes 24.1 miles of permanent access roads associated with the electrical transmission system. Water requirements for the project, when fully developed, total 17,622 acre-feet annually. Land requirements for each project component are summarized below:

Component	Acres Affected	Permanent	Temporary
Bonanza Power Plant & facilities	1,840	1,840	--
Access Road	36	20	16
Collector Well System	16	3	13
Water Pipeline	137	--	137
*Deserado Mine & Facilities	1,038	853	185
Alluvial Wells	1	1	--
Water Pipeline	12	--	12
Power lines	109	13	96
Coal transport System	648	181	467
**Electrical Transmission System	7,549	143	7,406
Total	11,386	3,054	8,332

**Excludes acreage requirements for 24.1 miles of permanent access roads. not quantified in the PDEIS.

* Includes loadout and clean coal storage area

Development of the Moon Lake power project will result in the permanent long term loss of approximately 3,054 acres of land, including forage production and the wildlife habitats associated therewith. Additionally 8,332 acres will be temporarily disturbed during construction. Noticeable and long term impacts associated with temporary disturbance are expected within the arid desert communities. Although impacts are reversible in time, botanical succession toward dominant vegetation will require many years to complete.

Reduced forage production and the significant alteration of wildlife habitats associated with lands temporarily disturbed are expected to be felt to a large degree for the life of the project.

Because of the occurrence of federally endangered fishes in both the Green and White Rivers, water withdrawals for project purposes and the potential impacts to each river's respective aquatic habitats will be discussed in our biological opinion submitted under authority of Section 7 of the Endangered Species Act.

A narrative summary of terrestrial impacts likely to occur with each project component follows.

Bonanza Power Plant Site

The general condition of rangeland in and around the proposed project is poor. Heavy grazing pressures from domestic livesock are felt throughout the area. The removal of acreage required for development of the power plant (1,840 acres) will concentrate wildlife and livestock use onto a smaller area, thus intensifying utilization impacts on adjacent lands and further degrading forage quality. Of particular concern is the loss of 82 acres of riparian habitat. Riparian habitat is a finite resource and within the project area is extremely important to a variety of wildlife for food, cover, nesting etc. Major impacts to wildlife resulting from development of the Bonanza power plant site include:

1. The permanent loss of 1,840 acres of critical antelope fawning habitat plus encroachment on the remaining fawning habitat surrounding the power plant.

2. The permanent loss of 1,840 acres of historical sage grouse range. (This is not considered a significant impact by Utah DWR).

3. The permanent loss of 1,700 acres of grazing area currently being utilized by wild horses.

4. The permanent loss of 82 acres of riparian habitat.

5. The permanent loss of a nesting site for the lark bunting. (One of only two nest sites in Utah).

Collector Wells and Water Pipeline

Development of the water source for the power plant will result in the permanent loss of 3 acres (one of which is riparian habitat) and the temporary disturbance of 150 acres. Because of relatively small land requirement, impacts to wildlife associated with this project component will likely be minimal. With proper timing of constuction and immediate rehabilitation of lands disturbed interference with normal migratory movements, potential breeding or nesting etc, could be virtually eliminated. Special consideration should be given the Scott's Oriole, a rare songbird in Utah and summer resident along the pipeline alignment.

Deserado Mine and Facilities

Development of the applicant preferred coal source will result in the permanent loss of 53 acres and the temporary disturbance of 185 acres of terrestrial wildlife habitats; 120 acres of which is riparian. Site specific evaluation of impacts associated with development and operation of the Deserado Mine will be accomplished through established procedures with BLM and OSM pursuant to our Memoranda of Understanding with them.

Alluvial Wells and Water Pipeline

Development of the water source for the mine complex will result in the permanent loss of 1 acre occupied by the wells. In addition 12 acres will be temporarily disturbed during construction of the water pipeline. Potential impacts to wildlife associated with this component can be minimized with appropriate construction timing and rehabilitation so as to eliminate possible conflicts with normal migratory movement and breeding activities; and to return lands to production as soon as possible.

Coal Transport System

Development of the conveyor/railroad coal conveyance system will result in the permanent loss of 181 acres and the temporary disturbance of 467 acres of terrestrial wildlife habitats. The railroad alignment will dissect fall and spring migration routes for mule deer and antelope as well as encroach on their winter ranges. Additionally it will create an obstacle to normal movements of deer, antelope and other wildlife. It is also anticipated that some animals will be lost as a result of collisions with the train. The railroad would also dissect about 5 miles of antelope fawning habitat and will likely result in reduced fawning success. The railroad alignment also traverses about 5 miles of preferred sage grouse habitat. It is estimated that 50 acres of riparian habitat would be lost to the railroad alignment as well. The lark bunting, a rare songbird in Utah, nests within the railroad corridor, this nest site is one of only two in Utah, both of which will be impacted by the project. There is also a ferruginous hawk nest located in close proximity to the railroad. Noise levels and or human activity during construction and operation may cause the nest to be abandoned.

Electrical Transmission System

Construction of the electrical transmission system will result in the permanent loss of 143 acres and the temporary disturbance of 7,406 acres. Support towers, poles, and powerlines will dissect a wide variety of critically important wildlife habitats. Fawning areas for antelope, concentration areas for sage grouse, critical winter ranges for deer and elk, fawning and calving areas for deer and elk, critical winter ranges for moose, sharptailed grouse concentration areas and major migration flyways for waterfowl, raptors and other birds. Reduced reproductive success, loss of individuals due to stress, and bird strikes on power lines will all likely occur. It is anticipated that these impacts can be minimized with some minor alignment changes and consideration for timing construction activities during other than critical periods. The construction of new roads, support pads, towers, disposal areas, and construction camps will all require the removal of native vegetation and in turn the loss of wildlife habitat, thus causing indirect mortality of individuals and/or a permanent restriction on future population growth.

Endangered Species

Endangered species potentially impacted by the proposed project will be specifically addressed in our upcoming biological opinion submitted under authority of Section 7 of the Endangered Species Act.

Recommendations

Because there are some data gaps associated with the proposed project, and in light of several key decisions yet to be made by BLM, participating agencies, and the applicant; our recommendations for mitigation of impacts to wildlife will be quite general at this time.

The direct loss and/or alteration of wildlife habitats coupled with the creation of additional access and increased human activity in the area will likely result in reduced populations of wildlife and increased demands for utilization. In order to offset potential adverse impacts to wildlife it is hereby recommended that the combined efforts of the FWS, Utah Division of Wildlife Resources, Colorado Division of Wildlife, BLM, USFS, and the applicant be utilized to jointly develop a mutually acceptable mitigation plan to be incorporated into the FEIS. Such a plan would be in the best interest of the public and would further provide the basis for stipulations to be included in ROW permits. A comprehensive mitigation plan of this type should include, as a minimum the following items:

1. A commitment from the developer to designate appropriate funds for all environmental mitigation, including initial development costs as well as continuing operation, maintenance, replacement and administrative costs for the life of the project.

2. Provisions by which public lands adjacent to project features could be managed specifically for the benefit of fish and wildlife resources. For example water resource development, habitat manipulation, improved grazing management etc. -all designed to upgrade habitat quality on adjacent lands, and to increase the lands carrying capacity to accommodate displaced animals.

3. Scheduling of construction activities for project features such that impacts to sensitive wildlife habitats or lifestages can be minimized.

4. Scheduling of train (coal transportation) operation outside periods of peak wildlife activity so as to minimize potential collisions.

5. Flexibility, by which project monitoring during construction and operation could identify and correct any adverse impacts not anticipated previously.

6. Reseeding of all temporarily disturbed areas with native vegetative cover compatible with the respective state wildlife agencies' management goals.

7. Provisions by which all mitigation efforts would be accomplished concurrently with construction.

8. Provisions for the enhancement of fish and wildlife resources whenever possible.

APPENDIX 24

March 3, 1849

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
COLORADO STATE OFFICE
ROOM 700, COLORADO STATE BANK BUILDING
1600 BROADWAY
DENVER, COLORADO 80202

IN REPLY REFER TO:

1792
FJ22
CO-922

GM 11/17

921 Dc 11/17

Memorandum

To: State Director, Utah

From: Acting State Director, Colorado

Subject: Population Estimates for the Moon Lake Power Plant EIS

As per your office's request, the CSO has evaluated the population estimates and distributions for the Moon Lake Power Plant EIS submitted to BLM by Burns and McDonnell. Our review indicates that the models used are acceptable and that the assumptions made are reasonable. The methodology employed and the assumptions used tend to be a worst-case analysis, and if anything, overstate population impacts. Therefore, the CSO concludes that the population numbers are acceptable for analysis in the EIS.

Enclosed you will find a copy of the letter from Burns and McDonnel which details the methodology and assumptions used. If you have any questions, please contact Greg Graff or Barbara Schmalz, Division of Planning and Environmental Coordination, CO-920.

Robert E. [illegible]

cc: Dewitt John, Dept. of Natural Res., State of Colorado

CONSERVE
AMERICA'S
ENERGY

Save Energy and You Serve America!

Browne, Bortz & Coddington
100 South Madison
Denver, Colorado 80209
(303) 321-2547

5 November 1980

Mr. David W. Hillier, Economist
U.S. Department of the Interior
Bureau of Land Management
Richfield District Office
150 East 900 North
Richfield, Utah 84701

Dear David:

This response to your letter of September 30th (received here on October 10th) is a further follow-up to our letter of September 22nd which contained an initial review of the Moon Lake Power Plant socioeconomic materials.

You indicated in the second paragraph of your letter that the main question concerns the distribution of project-related population. Specifically, you are interested in whether a ratio of 65 percent of the population allocated to the state in which either the mine or power plant is located with 35 percent in the other state is a proper approach. You point out that these percentages are arbitrary.

We really cannot determine whether or not these percentages are correct since none of the material we have received indicates that proper procedures have been followed in developing these estimates. The arbitrary split does not account for any of the key variables which determine worker settlement patterns, and in this regard, its limitations are similar to those of the mathematical equation previously suggested. An arbitrary assignment of worker settlement patterns could be very misleading in any evaluation of future socioeconomic impacts resulting from the Moon Lake Project.

For example, since our previous letter, BBC learned that there is a paved, all-weather county road connecting the Bonanza site with Rangely via Colorado State Highway 64. We understand that this road was improved in 1974 using Oil Shale Trust Fund money. The materials we have received from your office do not indicate whether or not the existence of this road was considered in applying the gravity model or other estimating techniques. The Bonanza site is only 35 miles from Rangely via this road whereas the distance to Vernal is 46 miles.

Our overall opinion, based on the limited amount of current data we have reviewed, is that the methodology employed may tend to overestimate population likely to settle in Vernal and subsequently underestimate population impacts on Rangely. The magnitude of these differences is unknown since we have not had an opportunity to perform our own analysis of the area.

We continue to emphasize that our experience (and this includes the experience of Jack Gilmore of Denver Research Institute and Larry Leistritz of North Dakota State University) indicates that extensive field work is necessary in order to make reasonable judgements on site specific worker commuting and population settlement patterns within an impact area. Even though Burns and McDonnell have assured you that field work has been accomplished, it is not reflected in the materials we received. Therefore, we cannot confirm the reasonableness of the estimates and have reason to believe that they may not be realistic.

I am sorry we cannot be any more specific than this. Please call me once you have had an opportunity to review our evaluation and we can discuss this further.

Sincerely,

Dean C. Coddington

Dean C. Coddington

je

Browne, Bortz & Coddington
100 South Madison
Denver, Colorado 80209
(303) 321-2547

September 22, 1980

David W. Hillier, Economist
U.S. Department of the Interior
Bureau of Land Management
Richfield District Office
150 East 900 North
Richfield, Utah 84701

Dear David:

This letter presents BBC's review of the Moon Lake Power Plant socioeconomic materials you provided last week.

In preparing these comments, we consulted with John S. Gilmore and J. Marty Uhlmann of Denver Research Institute, and F. Larry Listritz of North Dakota State University. A recently completed series of 12 case studies of how power plants have actually impacted surrounding communities also influenced our analysis; these case studies were prepared under sponsorship of the Electric Power Research Institute. The reveiw is, as you know, limited with a focus upon basic issues rather than minute details.

Residential Distribution

The residential distribution model described in Appendix 1, pp. A-1 to A-4, does not represent an adequate approach to distributing population within the overall impact area:

(1) Population used in the model should be from the baseline population forecast for the time period when the plant will be built; not for 1978. In the case of Rangely, population at the time of construction of the Moon Lake plant could be substantially higher due to oil shale or other resource development.

(2) No consideration appears to have been given to the ability of the major communities to house or service additional population. Our prior research indicates that recognition of community capacity (both public and private) is a crucial factor in determining where workers and their families are likely to reside.

(3) We are unsure about the status of roads in the area. For example, will the road between the Bonanza site and Rangely be adequate for

construction worker commuting by the time the plant is being built? Will the Vernal-Rangely road be improved?

(4) Our EPRI research indicates that, in every case, construction workers came from a larger geographic area than had originally been estimated. This raises a question as to whether a large enough proportion of workers has been allocated to places such as Meeker or even Grand Junction (weekly commuters).

Employment and Population Impacts

The following comments relate to pp. IV-9 to IV-19 and V-6 to V-13 of the materials you sent. The application of the model applied in converting employment to population was insufficient in several respects:

(1) The split between local and non-local workers appears to be arbitrary with no differentiation between the Bonanza and Rangely sites.

(2) No secondary affects are attributed to the 30 percent of construction workers hired locally. This does not appear reasonable--where will these workers come from and who will replace them or their present jobs?

(3) The proportion of married workers with family present appears high. Also, the same proportion is used for both sites.

(4) The average family size of married construction workers (3.58) might be too high.

(5) The construction worker multiplier for secondary jobs (.25) is probably too high in this case. Futhermore, the same multiplier has been used for both sites, an unlikely occurence given the drastically different population distribution projected earlier.

The same general comments apply to the handling of permanent workers (Figure IV-3 and VA-2). As nearly as we can tell, the identical approach was applied to both the Bonanza and Rangely sites. Specific comments include:

(1) The secondary employment multiplier for the permanent work force (both plant operation and the mine) was the same for peak and long term (see Figures IV-2 and IV-3). It would be larger for the long range employment because of the lag effect which typically occurs in the buildup of local services.

(2) The multiplier (.42) will be different for the Bonanza and Rangely sites. Furthermore, employment multipliers for permanent workers should be based upon an analysis of the local economic base; this apparently was not considered.

(3) Average household size estimates appear to be high.

Other Comments

The population projections which appear on p. IV-9 appear to be inconsistent. For example, the source of the Vernal estimates is the local chamber of commerce whereas the Rangely estimates are from the Colorado West Area Council of Governments; and they evidently exclude any liklihood of oil shale development.

The information you sent us contained no discussion or analysis of traffic/highway impacts. This could be an important type of impact requiring some mitigation.

In general, the approach used in evaluating the two sites is mechanistic. Little evidence is present of field work leading to first hand knowledge or understanding of the area.

Please call me if you need clarification on any of these comments.

Sincerely,

Dean C. Coddington

Dean C. Coddington

mhf

UTAH STATE UNIVERSITY · LOGAN, UTAH 84322

COLLEGE OF AGRICULTURE
COLLEGE OF BUSINESS

DEPARTMENT OF
ECONOMICS
UMC 35

September 19, 1980

Mr. David Hillier
Bureau of Land Management
Richfield District
150 E. 900 No.
Richfield, UT 84701

Dear Mr. Hillier:

In response to your request, I have made a thorough review of the following parts of the socioeconomic statement on the Bonanza Station in Eastern Utah and Deserado Mine in Western Colorado. In particular, the following sections have been reviewed: (1) Construction Employment Projections (pages IV-3 through IV-6); (2) Operating Employment Projections (pages IV-6 through IV-7); (3) Population Projections (pages IV-7 through IV-15); (4) Residential Distribution Patterns (pages IV-15 through IV-19); and (5) Appendix 1--Residential Prediction Model (pages A-1 through A-5).

My overall assessment is that the work is competently done and reflects state-of-the-art methods for impact projections. Most important, the work provides policymakers at all levels of government with a data base that is more than adequate for a variety of decisions associated with planning for, and mitigation of, socioeconomic impacts. My only criticism is that in a few places in the text some things are not explained particularly well, but this is a very minor point that could be resolved with minimal editorial work.

With regard to the construction employment projections, the assumptions made with regard to percentage single workers vis-a-vis the percentage bringing families with them and the secondary labor force multiplier of 0.25 are reasonable and consistent with studies done by others and the data from the *Construction Worker Profile* published by the Old West Regional Commission. In my opinion, this is the best set of primary data available for studies of this type. One problem in this section is that several of the numbers discussed on page IV-4 seem to be inconsistent with the data in Table IV-1, with which they are associated.

The assumptions concerning proportion of both direct and indirect employment to be filled by local residents is reasonable and represents an improvement over many impact studies which implicitly assume that all newly created jobs will accrue to individuals not currently living in the region. The other studies uniformly overestimate the population impacts. This overestimation bias has been adjusted for in the Burns and McDonnell study.

The summary figures on employment and population impacts (Figures IV-1, IV-2, and IV-3) clearly summarize all of the assumptions with regard to secondary employment multipliers, percentage of workers who are single and married, percentage nonlocal workers, and average family size. In addition, the figures clearly indicate the magnitude and source of the impacts. With regard to construction workers, the assumptions are as follows: (a) 30 percent of the construction force will be supplied from the local labor force, while 70 percent will be supplied from nonlocal sources; (b) 0.25 secondary jobs will be created for each new construction job; (c) 50 percent of the new construction workers will come to the area with families averaging 3.58 members, and 50 percent of these workers will be single (of course, the average family size is one in this case); and (d) with regard of the secondary jobs created, 55 percent will be filled by local workers and 45 percent by nonlocal workers.

For operating employment, the employment and population impacts are outlined in Figure IV-2. The assumptions made here are as follows: (a) of the new jobs created in operations, 10 percent will be filled from the local labor force and 90 percent from outside; (b) of these new workers, 90 percent will be married with families while 10 percent will be single; (c) average family size for married workers is 3.8; (d) the secondary employment multiplier (the number of new jobs created for every permanent operating job) is 0.42; and (e) 30 percent of these new secondary jobs will be filled locally, and 70 percent will be filled by newcomers to the area.

Of course, the magnitude of the impacts is critically dependent on these assumptions with regard to employment multipliers, percentage of jobs filled locally, and average family size. The assumptions made here are reasonable and consistent with those used in other studies and those estimated from empirical data on major projects that have been developed in the intermountain area.

There is no standard set of parameters to be used in this type of analysis. A competent analyst must combine historical data from other projects, local economic characteristics, and professional judgement in determining the multipliers, family sizes, etc. In my view, the assumptions used in this study reflect a clear understanding of these techniques and have been competently determined. Indeed, this is the way the Department of Housing and Urban Development[a] has suggested that these kinds of impacts be identified. Furthermore, it is the way that I have done them in a variety of impact studies in the intermountain west.

Finally, the residential prediction model described in Appendix 1 is, in my opinion, the best way to allocate new population to a variety of residential centers. Again, I have used this approach in a number of studies, as have many other analysts. The technique uses a straightforward gravity-type model that has been shown to be adequate in a variety of studies. It is assumed that the attractiveness of a residential center is directly proportional to the population of that center and inversely proportional to the distance of that center from the project under study. The following equation measures "attractiveness" of a residential center:

$$a_i = P_i/d_{ij}^b$$

where a_i is the measure of attractiveness of the i^{th} residential center, p_i is population, d_{ij} is the distance of the i^{th} center from the j^{th} project, and b is a parameter. The Burns & McDonnell study estimated the distance of elasticity for construction workers at 1.019 and for operating workers, 1.2. The use of quantitative data to statistically estimate the regression coefficient or elasticity represents an improvement over most studies which simply make an assumption about the magnitude of the elasticity. Then the relation:

$$NL_i = a_i/\Sigma a_i$$

determines the proportion of new labor or households (NL_i) distributed to each center.

Applying this model to current population levels in a set of seven population centers (lumping several small centers into an "other" category) results in the residential distribution percentages or, as I

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[a] Department of Housing and Urban Development, *Rapid Growth from Energy Projects: Ideas for State and Local Action--A Program Guide*, Washington, D.C., 1976.

Mr. David Hillier
Page 4
September 19, 1980

prefer to call them, "capture rates" as outlined in Table A-1 on page A-4. This process allocates approximately 60 percent of employment at the Bonanza site to Vernal, the major population center in that area, and some 15.5 percent to Rangely. Whereas, with regard to the Deserado Mine in Colorado, almost one half of the population impact accrues to Rangely and only 26.4 to Vernal. This is not only reasonable, it is exactly what one would predict simply on an ad hoc basis. To repeat, my overall analysis of the study is that it is competently done, reflects the best available techniques, and has resulted in a set of reasonable and highly useful data. While one can quibble with certain assumptions, there is no evidence to suggest that changing any assumption would represent an improvement.

Please let me know if I can be of further assistance to you.

Sincerely,

W. Cris Lewis
Professor

WCL/rv

APPENDIX 25

Unsuitability Criteria

as Applied to the

Deserado Mine

Logical Mining Unit (LMU)

(including Federal Leases C-023703 and D-047201

and Preference Right Lease Applications (PRLA)

C-8424, C-8425, and C-012669)

U. S. Bureau of Land Management

APPENDIX 25

Criterion 1: Federal Lands Systems

Criterion: All Federal lands included in the following land systems or categories shall be considered unsuitable: National Park Systems, National Wildlife Refuge Systems, National System of Trails, National Wilderness Preservation System, National Wild and Scenic Rivers Systems, National Recreation Areas, lands acquired with money derived from the Land and Water Conservation Fund, National Forests, and Federal lands in incorporated cities, towns, and villages. All Federal lands which are recommended for inclusion in any of the above systems or categories by the administration in legislative proposals submitted to the Congress or which are required by statute to be studied for inclusion in such systems or categories shall be considered unsuitable.

Exception: A lease may be issued within the boundaries of any National Forest if the Secretary finds no significant recreational, timber, economic or other values which may be incompatible with the lease; and (A) surface operations and impacts are incident to an underground coal mine, or (B) where the Secretary of Agriculture determines, with respect to lands which do not have significant forest cover within those National Forests west of the 100th meridian, that surface mining may be in compliance with the Multiple-Use Sustained-Yield Act of 1960, the Federal Coal Leasing Amendments Act of 1976 and the Surface Mining Control and Reclamation Act of 1977. A lease may be issued within the Custer National Forest with the consent of the Department of Agriculture as long as no surface coal mining operations are permitted.

Exemption: The application of this criterion to lands within the listed land systems and categories is subject to valid existing rights, and does not apply to surface coal mining operations existing on August 3, 1977. The application of the portion of this criterion applying to land proposed for inclusion in the listed systems does not apply to lands: to which substantial legal and financial commitments were made prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

Overlays Referenced: None required.

Areas Unsuitable: None designated.

Rationale: The Deserado Mine LMU is not included in any of the above categories. Nor are any of the lands in the Deserado Mine LMU recommended for inclusion in any of the above systems or categories by the administration in legislative proposals submitted to the Congress. The Deserado Mine LMU was required by the Federal Land Policy and Management Act of 1976 (FLPMA) to be studied for wilderness characteristics and inclusion to the Wilderness Preservation System. The Deserado Mine LMU was studied in 1978 and found not eligible for inclusion.

Criterion 2: Rights-of-Way and Easements

Criterion: Federal lands that are within rights-of-way or easements or within surface leases for residential, commercial, industrial, or other public purposes, or for agricultural crop production on Federally owned surface shall be considered unsuitable.

Exception: A lease may be issued, and mining operations approved, in such areas if the surface management agency determines that:
(i) All or certain types of coal development (e.g. underground mining) will not interfere with the purpose of the right-of-way or easement; or
(ii) The right-of-way easement was granted for mining purposes; or
(iii) The right-of-way easement was issued for a purpose for which it is not being used; or
(iv) The parties involved in the right-of-way or easement agree, in writing, to leasing; or
(v) It is impractical to exclude such areas due to the location of coal and method of mining and such areas or uses can be protected through appropriate stipulations.

Exemption: This criterion does not apply to lands: to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

Overlays Referenced: None required.

Areas Unsuitable: None designated.

Rationale: County Road 65 crosses the Deserado Mine LMU from the southeast to the northwest. Approximately six miles of County Road 65 are in the Deserado Mine LMU. County Road 96 begins at County Road 65 near the northern edge of PRLA C-8424 and runs southwesterly across PRLA C-8424 and beyond. Approximately two miles of County Road 96 are in PRLA C-8424. County Road 78 begins at County Road 65 in the center of PRLA C-8425 and runs in a northeasterly direction out of PRLA C-8425. Approximately one-half mile of County Road 78 is in PRLA C-8425. However, since the Deserado Mine will be an underground mine and will not interfere with public use of these roads, the surface management agency grants an exception to this criteria per the exceptions listed along with the criterion. A Mountain Bell right-of-way (C-071596) crosses the extreme southeast corner of PRLA C-0126669. However, since the mining operation will not extend south of the White River the Deserado Mine will not impact the Mountain Bell right-of-way. Therefore, the federal management agency will exclude PRLA C-0126669 for this reason. The Deserado Mine LMU is not within any of the other above listed types of Federal land.

Criterion 3: Buffer Zones Along Rights-of-Way and Adjacent to Communities and Buildings

Criterion: Federal lands affected by section 422(e) (4) and (5) of the Surface Mining Control and Reclamation Act of 1977 shall be considered unsuitable. This includes lands within 100 feet of the outside line of the right-of-way of a public road or within 100 feet of a cemetary, or within 300 feet of any public building, school, church, community or institutional building or public park or within 300 feet of an occupied dwelling.

Exceptions: A lease may be issued for lands: (i) Used as mine access roads or haulage roads that join the right-of-way for a public road;
(ii) For which the Office of Surface Mining Reclamation and Enforcement has issued a permit to have public roads relocated;

(iii) For which owners of occupied buildings have given written permission to mine within 300 feet of their buildings.

Exemptions: The application of this criterion is subject to valid existing rights, and does not apply to surface coal mining operations existing on August 3, 1977.

Overlays Referenced: None required.

Areas Unsuitable: None designated.

Rationale: The underground portion of the Deserado Mine crosses beneath public raods in the Deserado Mine LMU as discussed in Criterion Number 2. These roads are gravel roads and jeep trails. They will not be impacted by the underground mining. Any subsidence that may occur will be gentle and since the roads will be constantly maintained, public use of these roads will not be affected. There are no public buildings, schools, churches, community or institutional buildings or public parks or occupied dwellings within 300 feet of the Deserado Mine LMU.

Criterion 4: Wilderness Study Areas

Criterion: Federal lands designated as wilderness study areas shall be considered unsuitable while under review by the Administration and the Congress for possible wilderness designation. For any Federal land which is to be leased or mined prior to completion of the wilderness inventory by the surface management agency, the environmental assessment or impact statement on the lease sale or mine plan shall consider whether the land possesses the characteristics of a wilderness study area. If the finding is affirmative, the land shall be considered unsuitable, unless issuance of noncompetitive coal leases and mining on leases is authorized under the Wilderness Act and the Federal Land Policy and Management Act of 1976.

Exemption: The application of this criterion to lands for which the Bureau of Land Management is the surface management agency and lands in designated wilderness areas in National Forests is subject to valid existing rights.

Overlays Referenced: None required.

Areas Unsuitable: None designated.

Rationale: None of the lands within or adjacent to the Deserado Mine LMU have been designated as wilderness study areas.

Criterion 5: Scenic Areas

Criterion: Scenic Federal lands designated by visual resource management analysis as Class I (an area of outstanding scenic quality or high visual sensitivity) but not currently on the National Register of Natural Landmarks shall be considered unsuitable. A lease may be issued if the surface management agency determines that surface coal mining operations will not significantly diminish or adversely affect the scenic quality of the designated area.

Exemption: This criterion does not apply to lands: to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

Overlays Referenced: None required.

Areas Unsuitable: None designated.

Rationale: None of the lands within the Deserado Mine LMU have been designated Class I by visual resource management.

Criterion 6: Lands Used for Scientific Studies

Criterion: Federal lands under permit by the surface management agency, and being used for scientific studies involving food or fiber production, natural resources, or technology demonstrations and experiments shall be considered unsuitable for the duration of the study, demonstration or experiment, except where mining could be conducted in such a way as to enhance or not jeopardize the purposes of the study, as determined by the surface management agency, or where the principal scientific user or agency gives written concurrence to all or certain methods of mining.

Exemptions: This criterion does not apply to lands: to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

Overlays Referenced: None required.

Areas Unsuitable: None designated.

Rationale: The BLM has three Range Plot studies (#6316-1, #6316-2, and #6316-5) within the Deserado Mine LMU. However, since the Deserado Mine will be an underground mining operation and since none of the surface facilities will interfere with these range plot studies, the federal land management agency deems the area suitable for the proposed mining.

Criterion 7: Historic Lands and Sites

Criterion: All districts, sites, buildings, structures, and objects of historic, architectural, archeological, or cultural significance on Federal lands which are included in or eligible for inclusion in the National Register of Historic Places and an appropriate buffer zone around the outside boundary of the designated property (to protect the inherent values of the property that make it eligible for listing in the National Register) as determined by the surface management agency, in consultation with the Advisory Council on Historic Preservation and the State Historic Preservation Office shall be considered unsuitable.

Exception: All or certain stipulated methods of coal mining may be allowed if the surface management agency determines, after consultation with the Advisory Council on Historic Preservation and State Historic Preservation Office that the direct and indirect effects of mining, as stipulated, on a property in or eligible for the National Register of Historic Places will not result in significant adverse impacts to the property.

Overlays Referenced: None required.

Areas Unsuitable: None designated.

Rationale: Six archeological sites have been found in the Deserado Mine LMU which may be eligible for inclusion in the National Register of Historic Places. These six sites are identified as 5RB859, 5RB922, 5RB1008, 5RB1055, 5RB1068, and 5RB1072. None of these sites will be affected by surface disturbances. Should these sites become registered, Western Fuels will monitor each site on a bi-annual basis for disturbances which may occur as a result of subsidence. If a disturbance occurs, Western Fuels will contract a qualified archeologist to dig the site(s) and remove those objects of historic, archeological, or cultural significance. Such objects will then be placed in an approved depository. The Advisory Council on Historic Preservation and the State Historic Preservation Office have agreed that these lands are suitable for mining as per discussions with the Colorado State Office-BLM. The Colorado SHPO has been contacted and was unable to determine eligibility due to a lack of information.

Criterion 8: Natural Areas

Criterion: Federal lands designated as natural areas or as National Natural Landmarks shall be considered unsuitable.

Exception: A lease may be issued and mining operation approved in an area or site if the surface management agency determines that: (i) With the concurrence of the state, the area or site is of regional or local significance only; (ii) The use of appropriate stipulated mining technology will result in no significant adverse impact to the area or site; or (iii) The mining of the coal resource under appropriate stipulations will enhance information recovery (e.g., paleontological sites).

Exemption: This criterion does not apply to lands: to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which includes operations on which a permit has been issued.

Overlays Referenced:

None required.

Areas Unsuitable: None designated.

Rationale: None of the lands within the Deserado Mine LMU are designated as natural areas or as National Natural Landmarks.

Criterion 9: Federally Listed Endangered Species

Criterion: Federally designated critical habitat for threatened or endangered plant and animal species, and habitat for Federal threatened or endangered species which is determined by the Fish and Wildlife Service and the surface management agency to be of essential value and where the presence of threatened or endangered species has been scientifically documented, shall be considered unsuitable.

Exception: A lease may be issued and mining operations approved if, after consultation with the Fish and Wildlife Service, the service determines that the proposed activity is not likely to jeopardize the continued existence of the listed species and/or its critical habitat.

Overlays Referenced: None required.

Areas Unsuitable: None designated.

Rationale: Under the current listing, the Fish and Wildlife Service (FWS) has not identified any areas of critical habitat for Federally listed threatened or endangered (T&E) species (as per Endangered Species Act) in the immediate Logical Mining Unit (LMU) area.

However, five Federally endangered species inhabit or are remnant to the LMU area; the Colorado squawfish, bonytail chub, humpback chub, bald eagle, and blackfooted ferret.

It was determined during informal consultation and coordination with the FWS that none of the LMU area would warrant classification as lands unsuitable for mining under this criterion if the following stipulations are adhered to:

Stipulations:

Proper watershed management and protective measures (e.g., revegetation of disturbed sites, sediment ponds) during mine development and operation should be incorporated to alleviate problems associated with water quality declines in Scullion Draw and the White River. Facilities should be established in Scullion Draw to permanently monitor water quality and detect any changes which may adversely affect the T/E fish species.

Criterion 10: State Listed Endangered Species

Criterion: Federal lands containing habitat determined critical or essential for plant or animal species listed by a State pursuant to State law as endangered or threatened shall be considered unsuitable.

Exception: A lease may be issued and mining operations approved if, after consultation with the State, the surface management agency determines that the species will not be adversely affected by all or certain stipulated methods of coal mining.

Exemption: This criterion does not apply to lands: to which the operator made substantial financial and legal commitments prior to January 4, 1977; on which operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

Overlays Referenced: None required.

Areas Unsuitable: None designated.

Rationale: There are no areas of critical habitat identified for state listed T/E species in the immediate LMU area.

The razorback sucker, a state listed endangered species not receiving Federal protection, is endemic to portions of the White River.

Potential adverse impacts and necessary stipulations would be identical to those described in Criterion 9 for Federally listed endangered fish species.

Criterion 11: Baldand Golden Eagle Nests

Criterion: A bald or golden eagle nest that is determined to be active and an appropriate buffer zone of land around the nest area shall be considered unsuitable. Consideration of availability of habitat for prey species and of terrain shall be included in the determination of buffer zones. Buffer zones shall be determined in consultation with the U.S. Fish and Wildlife Service.

Exception: A lease may be issued and mining operations approved if:

(A) they can be conditioned in such way, either in manner or period of operation, that eagles will not be disturbed during breeding season; or

(B) golden eagle nest sites will be moved with the concurrence of the Fish and Wildlife Service.

Overlays Referenced: Overlay 1 - Areas designated as unsuitable (Criterion 11).

Areas Unsuitable: See composite listing and Overlay 1.

Rationale: One active golden eagle nest is located on the LMU between the ventilation shaft entrance and west mine portal where mining activities will provide visual and audible disturbance factors. BLM and FWS biologists concur that the distance from the proposed activities to the nest is sufficient to allow continous eagle nesting activities. It was resolved during informal consulation and coordination with FWS that a protective buffer strip be established as an area that shall be considered unsuitable for surface coal mining operations. This buffer strip will encompass an area in Scullion Draw between portal entrances which are visible from the cliff nest site. Periodic activity during the non-nesting season (1 June - 28 February) in this area could be approved by BLM on a case-by-case basis.

Criterion 12: Bald and Golden Eagle Roost and Concentration Areas

Criterion: Bald and golden eagle roost and concentration areas used during migration and wintering shall be considered unsuitable.

Exception: A lease may be issued and mining operations approved if the surface management agency determines that all or certain stipulated methods of coal mining can be conducted in such a way, and during such periods of time, to ensure that eagles shall not be adversely disturbed.

Overlays Referenced: None required.

Areas Unsuitable: None designated.

Rationale: No bald or golden eagle roosts or concentration areas used during migration or for wintering purposes are known to exist on the LMU or within 5 miles of the lease boundaries. During informal consultation and coordination with the FWS, it was decided that mining activities would not prove detrimental to roosts or concentration areas in adjacent areas.

Criterion 13: Falcon Cliff Nesting Sites

Criterion: A falcon cliff nesting site (excluding kestrel nest sites) with active nests and a buffer zone of land around the nest site area shall be considered unsuitable. Consideration of availability of habitat for prey species and of terrain shall be included in the determination of buffer zones. Buffer zones shall be determined in consultation with the U.S. Fish and Wildlife Service.

Exception: A lease may be issued and mining operations approved where the surface management agency, after consultation with the Fish and Wildlife Service, determines that all or certain stipulated methods of coal mining will not adversely affect the migratory bird habitat during the periods when such habitat is used by the species.

Overlays Referenced: None required.

Areas Unsuitable: None designated.

Rationale: No peregrine or prairie falcon eyries have been identified on or within 5 miles of the LMU area.

Criterion 14: Migratory Birds

Criterion: Federal lands which are high priority habitat for migratory bird species of high Federal interest on a regional or national basis, as determined jointly by the surface management agency and the Fish and Wildlife Service, shall be considered unsuitable.

Exception: A lease may be issued and mining operations approved where the surface management agency, after consultation with the Fish and Wildlife Service, determines that all or certain methods of coal mining will not adversely affect the migratory bird habitat during the periods when such habitat is used by the species.

Overlays Referenced: None required.

Areas Unsuitable: None designated.

Rationale: An active ferruginous hawk nest is located offtract approximately 0.5 miles north of the LMU tract. BLM and FWS biologists felt the areas within the LMU boundaries would not warrant classification as an area unsuitable for development because the area is not a high priority habitat for the migratory species.

Criterion 15: State Resident Fish and Wildlife

Critierion: Federal lands which the surface management agency and the State jointly agree are fish and wildlife habitat for resident species of high interest to the State and which are essential for maintaining these priority wildlife species shall be considered unsuitable. Examples of such lands which serve a critical function for the species involved include: - Active dancing and strutting grounds for sage grouse, sharptailed grouse, and prairie chicken; Most-critical winter ranges for deer, antelope, and elk; and Migration corridors for elk.

A lease may be issued and mining operation approved if, following consultation between the State and the land management agency, it is determined that the coal mining will not have a significant long-term impact on the species being protected.

Exemption: This criterion does not apply to lands: to which the operator made substantial financial and legal commitments prior to January 4, 1977; on which operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

Overlays Referenced: None required.

Areas Unsuitable: None designated.

Rationale: A pronghorn winter concentration area occurs in T3N R101W, Section 30: NW¼. The portion of this winter concentration area within the LMU is considered marginal quality due to topography. The Colorado Division of Wildlife did not feel this area warranted classification as an area unsuitable for surface mining based on the current mining plan developed for this project. The Bureau concurs with this opinion.

Composite Listing of Lands Evaluated
As Unsuitable for Criteria 9-15
(Without Exceptions)

Legal	Criterion Affected	Specific Legal[1]	Rationale[2]
T2N R101W			
1	9	S½S½	TE
3	11	E½SE¼SW¼, S½SE¼	GEN
10	9 & 11	NE¼, E½E½NW¼, SE¼	TE,GEN
11	9	S½N½, S½	TE
12	9	N½, N½S½	TE

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[1] Legals provided only for portion of buffer strip within LMU

[2] TE: Habitat of Federal and State listed threatened and endangered species;
GEN: Golden Eagle Nest

Composite Listing of Lands Evaluated
As Unsuitable for Criteria 9-15
(With Exceptions)

Legal	Criterion Affected	Specific Legal[1]	Rationale[2]
T2N R101W			
3	11	E½SE¼SW¼, S½SE¼	GEN
10	11	NE¼, E½E½NW¼	GEN

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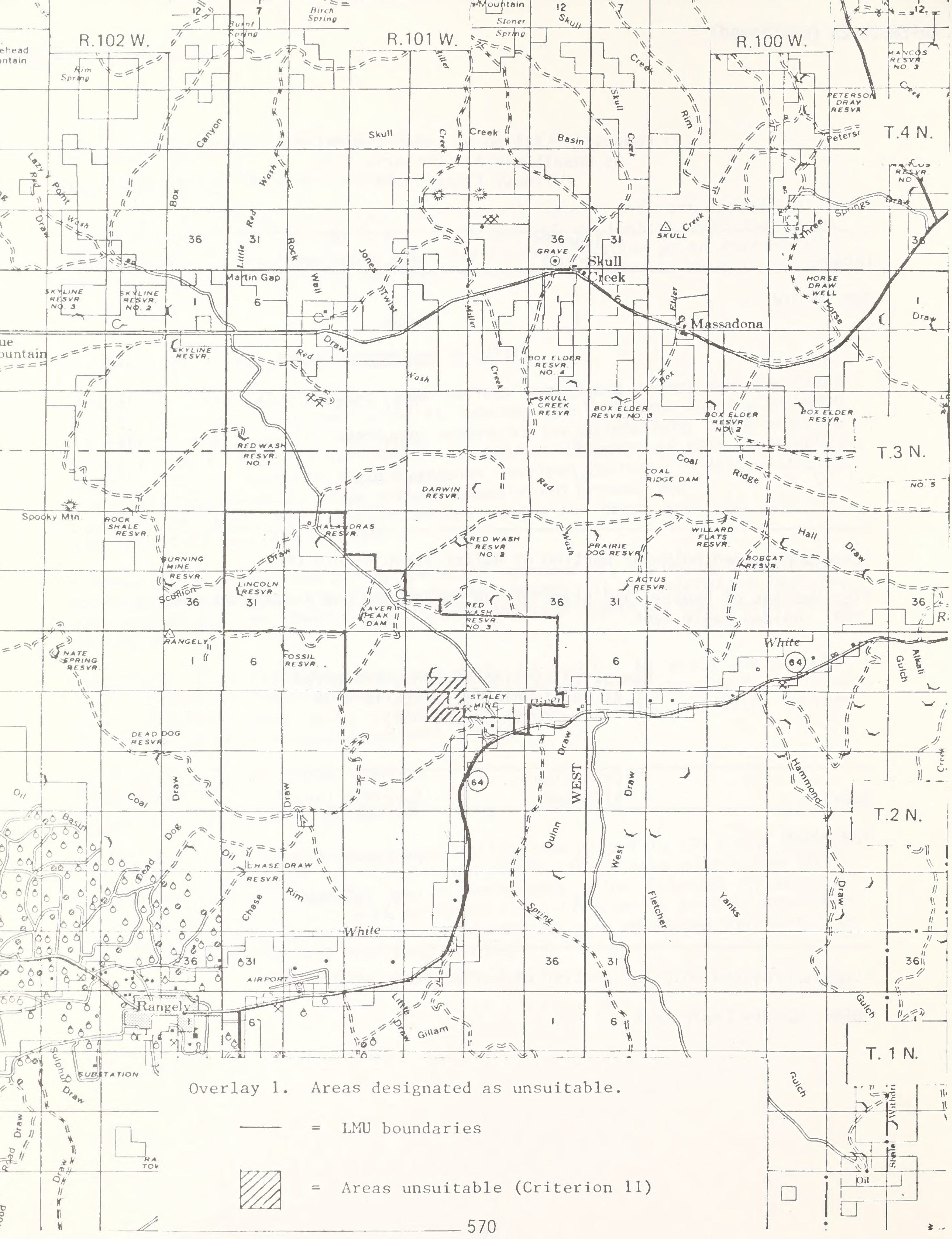
[1] Legals provided only for portion of buffer strip within LMU

[2] GEN: Golden Eagle Nest



R.102 W.
R.101 W.
R.100 W.
T.4 N.
T.3 N.
T.2 N.
T. 1 N.
Skull Creek
Massadona
Martin Gap
Rangely
WEST
White
Skull Creek
Box Canyon
Red Wash
Red Draw
Little Red
Rock Wall
Jones Twist
Miller Creek
Box Elder
Skull Creek Basin
Rim
Three Springs Draw
Horse Draw
Lazy Y Point
Red Wash
Coal Ridge
Hall Draw
Spooky Mtn.
Scullion
Coal Draw
Dead Dog
Oil Basin
Chase Rim
Chase Draw
Quinn Draw
West Draw
Fletcher
Yanks
Spring
Hammond Draw
Alkali Gulch
Gulch
Little Draw
Gillam
Sulphur Draw
Oil
Shale
Birch Spring
Burnt Spring
Rim Spring
Stoner Spring
Mountain
MANCOS RESVR NO. 3
PETERSON DRAW RESVR
SKULL
GRAVE
HORSE DRAW WELL
SKYLINE RESVR NO. 3
SKYLINE RESVR NO. 2
SKYLINE RESVR.
BOX ELDER RESVR. NO. 4
SKULL CREEK RESVR.
BOX ELDER RESVR. NO. 3
BOX ELDER RESVR. NO. 2
BOX ELDER RESVR.
RED WASH RESVR. NO. 1
DARWIN RESVR.
COAL RIDGE DAM
ROCK SHALE RESVR.
HALANDRAS RESVR.
RED WASH RESVR NO. 2
PRAIRIE DOG RESVR.
WILLARD FLATS RESVR.
BOBCAT RESVR.
BURNING MINE RESVR.
LINCOLN RESVR.
CACTUS RESVR.
BEAVER PEAK DAM
RED WASH RESVR. NO. 3
RANGELY
NATE SPRING RESVR.
FOSSIL RESVR.
STALEY MINE
DEAD DOG RESVR.
CHASE DRAW RESVR.
AIRPORT
SUBSTATION
64
36
31
1
6
12
7

Overlay 1. Areas designated as unsuitable.

—— = LMU boundaries

▨ = Areas unsuitable (Criterion 11)

Criterion 16: Floodplains

Criterion: Federal lands in riverine, coastal, and special floodplains (100-year recurrence interval) shall be considered unsuitable unless, after consultation with Geological Survey, the surface management agency determines that all or certain stipulated methods of coal mining can be undertaken without substantial threat of loss to people or property, and to the natural and beneficial values of the floodplain on the lease tract and downstream.

Exemption: This criterion does not apply to lands: to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

Overlays Referenced: None required.

Areas Unsuitable: Within 100-year floodplain of White River.

Rationale: The southern portion of Preference Right Lease Application (PRLA) C-012669 lies within the 100-year floodplain of the White River.

Stipulation: Mining is prohibited within a 100-foot buffer area of the 100-year floodplain of the White River.

Criterion 17: Municipal Watersheds

Criterion: Federal lands which have been committed by the surface management agency to use as municipal watershed shall be considered unsuitable.

Exception: A lease may be issued where:

(i) The surface management agency determines, as a result of studies, that all or certain stipulated methods of coal mining will not adversely affect the watershed to any significant degree; and (ii) The municipality (incorporated entity) or the responsible governmental unit concurs in writing in the issuance of the lease.

Exemption: This criterion does not apply to lands to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

Overlays Referenced: None required.

Areas Unsuitable: None designated.

Rationale: None of the Deserado Mine LMU is on lands which have been committed for use as municipal watersheds.

Criterion 18: National Resource Waters

Criterion: Federal lands with National Resource Waters, as identified by states in their water quality management plans, and a buffer zone of Federal lands 1/4 mile from the outer edge of the far banks of the water, shall be unsuitable.

Exception: The buffer zone may be eliminated or reduced in size where the surface management agency determines that it is not necessary to protect the National Resource Waters.

Exemption: This criterion does not apply to lands: to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were being conducted on August 3, 1977; or which include operations on which a permit has been issued.

Overlays Referenced: None required.

Areas Unsuitable: None designated.

Rationale: There are no National Resource Waters within the Deserado Mine LMU.

Criterion 19: Alluvial Valley Floors

Criterion: Federal lands identified by the surface management agency, in consultation with the state in which they are located, as alluvial valley floors according to the definition in 3400.0-5(a) of this title, the standards in 30 CFR Part 822, the final alluvial valley floor guidelines of the Office of Surface Mining Reclamation and Enforcement when published, and approved state programs under the Surface Mining Control and Reclamation Act of 1977, where mining would interrupt, discontinue, or preclude farming, shall be considered unsuitable. Additionally, when mining Federal land outside an alluvial valley floor would materially damage the quantity or quality of water in surface or underground water systems that would supply alluvial valley floors, the land shall be considered unsuitable.

Exemptions: This criterion does not apply to surface coal mining operations which produced coal in commercial quantities in the year preceding August 3, 1977, or which had obtained a permit to conduct surface coal mining operations.

Overlays Referenced: None required.

Areas Unsuitable: None designated. See Criterion 16:Floodplains.

Rationale: None of the lands within the Deserado Mine LMU on which surface disturbance would occur are considered alluvial valley floors. The Colorado State Office of BLM received a response from the State of Colorado regarding Alluvial Valley Floors (VF's) which contained no substantive comments. Therefore, the Acting State Director, Colorado, has stated that "the area should be deemed suitable for further consideration at this time."

Criterion: Federal lands in a state to which is applicable a criterion (i) proposed by that state, and (ii) adopted by rule-making by the Secretary, shall be considered unsuitable.

Exception: A lease may be issued when: (i) Such criterion is adopted by the Secretary less than 6 months prior to the publication of the draft comprehensive land use plan or land use analysis, plan, or supplement to a comprehensive land use plan, for the area in which such land is included, or (ii) After consultation with the state, the surface management agency determines that all or certain stipulated methods of coal mining will not adversely affect the value which the criterion would protect.

Exemption: This criterion does not apply to lands: to which the operator made substantial legal and financial commitments prior to January 4, 1977; on which surface coal mining operations were made being conducted on August 3, 1977; or which include operations on which a permit has been issued.

Overlays Referenced: None required.

Areas Unsuitable: None designated.

Rationale: There are no lands within the Deserado Mine LMU to which is applicable a criterion proposed by the State of Colorado.

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